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To combine in one location all the facilities of its scouting, editorial, draughting and photographic departments, California Oil World, effective April 1, was established in larger quarters in the 939 South Broadway Building.

This unification of facilities will prove of particular benefit to the many readers of California Oil World whose practice it has been to visit the publication's offices in quest of information and other services. The increased accessibility of the California Oil World's services should make the publication's offices more than ever the Clearing House for California oil men.

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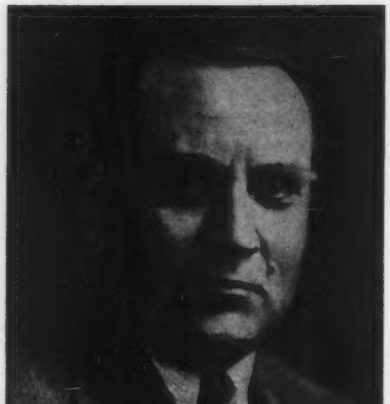
California Oil Producers Agency Studies

Cost of Production—Vander Leck

The first official act of Lawrence Vander Leck, elected president of Oil Producers Agency at its annual Luncheon Meeting at the Biltmore late last month, was the appointment of a committee to investigate the cost of production of



Lawrence Vander Leck

oil in California, and to launch a program which, through a study of the economics and statistics of the industry, is expected to establish the need for, and justification of, higher prices for crude oil.

In connection with the appointment of this committee, Mr. Vander Leck stated that the recent increases in posted prices fell far short of meeting the industry's current needs, even though they were a move in the right direction. Recalling that in February 1940 the Standard Oil Company of California sharply reduced the posted price for crude oil at the well in California, he said that "California producers, especially those with heavy oil, have been fighting a losing economic battle ever since. Every cost factor in the business has moved steadily upward, and the present increase in the posted price is wholly inadequate to meet these rising costs, and further adjustments upward are imperative."

Mr. Vander Leck pointed to data submitted to the April 14 joint meeting of the Interstate Oil Compact Commission and the Cole Congressional Committee in New Orleans, which he attended as an observer from California. Department of Labor index statistics presented there showed that the 1935-1937 base index on ten principal products used by the oil industry in its operations now stands at 111. The same index showed that prices for petroleum products have declined until the petroleum index is now just over 88.

"The increase of 11 points in prices paid by the oil producer for his principal purchases, together with a decrease of over 11 points in the price received for oil products has presented a serious problem for the petroleum industry" Mr. Vander Leck declared.

"The consuming public has had the advantage of extremely low prices which have prevailed on petroleum products, prices totally out of line with prices obtaining on all other basic commodities," he pointed out, "but the producer cannot efficiently operate his properties, continue remedial work on his wells, constantly employ labor and maintain a steady exploration and development program for new sources of petroleum, unless he obtains a return for his product which will permit him to meet these steadily increasing costs of doing business."

The committee appointed to study this problem include Ralph B. Lloyd, Lloyd Corporation, Chairman; L. L. Aubert, Bankline Oil Company; C. C. Spicer, Republic Petroleum Company; Dana Hogan, Hogan Petroleum Company; C. A. Johnson, Holly Development Company; and Lloyd Williamson, California Star Oil Company.

An interim report since made by this committee indicates that production costs are increasing, and points out that as a national defense measure, if for no other reason, the oil producer must be economically healthy. "The producer is charged with the duty of making oil abundantly available for

L. L. Aubert

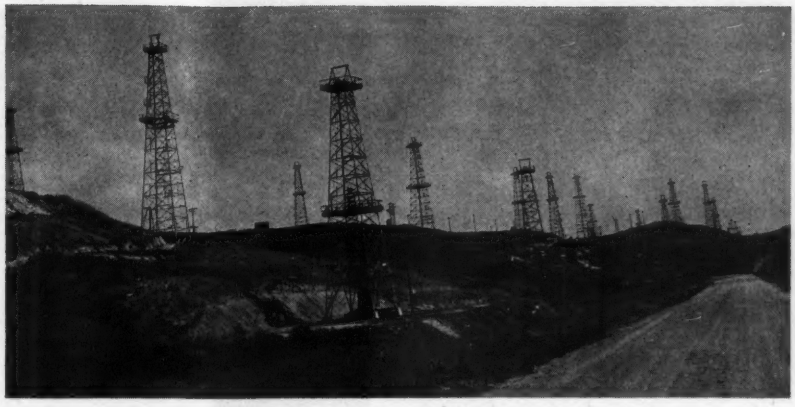
any emergency which may arise. If he is to do so, he must continue to explore for new supplies of oil, yet today he finds himself in a position in which his cost of development and discovery is increasing while his revenue is consistently diminishing. It is obvious that with increasing costs of all supplies, together with generally increasing costs of doing business, including a tax load which will reach the highest point in history, the oil producer's income must increase if he is to discharge his duty to the nation", Mr. Lloyd said, in making the reports for the committee.

The maintenance of an adequate supply has driven the industry to deeper and deeper drilling during the past few years, and wells more than 10,000 feet deep costing up to $250,000 each are common. "However, even with this deeper

drilling, California showed a net loss of 17,079,000 barrels of reserves during 1940, according to the American Petroleum Institute, new discoveries failing to equal production by that amount. At least one of the reasons for failure to discover additional reserves was the slowing up of wildcat drilling, which in turn was caused by low prices for crude and by low allowable production with its reduction of income from producing wells", Mr. Lloyd said.

"The Conservation Committee has set top allowable production of even the most prolific wells at 142 barrels per well per day, probably to be reduced further as new wells are completed, in spite of the fact that at the present level the new deep wells will not return their cost of drilling for four or five years. Further reduction of top allowable will extend this period proportionately," according to Mr. Lloyd.

"While it may seem uneconomic to drill additional wells in the face of conditions which indicate that there will be a smaller per well allowable production, with the resultant smaller per well income, nevertheless continuous drilling is essential if the trend of last year's net loss of reserves in California is to be reversed, and if adequate supplies for the future are to be maintained", Mr. Lloyd says. "The oil supplies thus developed do not burden the purchasing company since they are not produced but are held in the ground at the expense of the producer who owns the well. Current production follows the amount allocated by the Conservation Committee, which amount is based upon current requirements while an excess capacity to produce is essential since it represents a safety factor in the event of emergency demand".



In the Poso Creek area you travel alongside of oil wells for miles.

As a purely economic basis for increased prices for crude, aside from reasons of policy and national defense, Mr. Lloyd points out that stocks have been drawn upon more than 9,200,000 barrels in the 12 months ended March 31, 1941, according to the United States Bureau of Mines. "This decrease," Mr. Lloyd said, "includes a decrease of 1,767,000 barrels in gasoline, which has been the stumbling block in the storage situation. The gasoline decrease has taken place in the face of a continuously increasing supply of light crudes, and undoubtedly reflects the February all-time high in domestic gasoline demands, which all oil industry statisticians and economists expect to continue to increase.

"It is true that the increase in demand for fuel oil is relatively greater thus far than the increase in demand for gasoline, but the fuel oil increase will certainly level off, while the gasoline increase is probably just starting. If that is the case, storage will be further drawn upon, and purchasing companies will be relieved of any burden they may at present be laboring under because of past additions to storage."

It is important to remember, Mr. Lloyd further pointed out, that these demand figures are based principally upon domestic requirements, the foreign demand subject to the vicissitudes of war being but approximately 10 percent. Of

Proficient golfers these participants in the Tide Water Associated Oil Co. Employes Annual Tournament at Woodland Hills Country Club. Left to right, they are: J. W. Murray, D. E. White, E. V. "Bing" Black, George Carey, Doyle Wetmore, P. D. Coleman, Guy Mapes, Bill Reeves and R. J. Patterson

this figure, very little is represented by gasoline, the Pacific Foreign market now being principally for crudes and heavier products.

In accepting the presidency of the organization, Mr. Vander Leck paid high praise to L. L. Aubert, retiring president whose second term had expired, who he said, "had worked tirelessly in behalf of the industry not only as Agency president, but also in many other activities."

Mr. Vander Leck is vice president and a director of the Fullerton Oil Company, with which company he has been associated since 1920, following two years with the then State Mining Bureau, now State Division of Oil and Gas, of which he had become chief geologist. During this period, Mr. Vander Leck prepared one of the first surveys of oil resources in the state,

This ticklish situation was easily remedied by running a guy line to a low point on the tractor which moved forward as the truck was towed back to solid ground. The mixer truck had just dumped its load of cement into the foundation forms for Federal Oil Co.'s Smith No. 2 at Inglewood.

Composite Schedule of California Crude Oil Prices as of April 24, 1941

This schedule was compiled by California Oil World from data supplied by the major purchasers of crude oil in each field. Payments for crude oil are made on the basis of the gravity of the oil at 60 degrees F. determined by A.S.T.M. methods. Prices are for gravity ranges between even degrees except in fields quoted only by Union Oil Co. which calculates to the nearest cent per barrel from quotations midway between degrees. Example: Union's quotations at Orcutt are 16.5 gravity, $.68, 17.5 gravity, $.69 etc.

Price per barrel in fields designated

Gravity	Signal Hill	Wilmington	Huntington Beach	Seal Beach	Torrance	Inglewood	Santa Fe Springs	Rosecrans Dominguez	Playa del Rey	Whittier East Coyote	West Coyote	Olinda-Brea Canyon	Richfield	North Whittier Montebello Ventura Avenue	Shiells Canyon South Mt. Santa Paula	Elwood	Santa Maria Valley	Orcutt	Elk Hills Buena Vista Hills Midway-Sunset Lake View Area	Edison Mountain View	Belridge Lost Hills	Coalinga	Newhall Fruitvale Kern Front Kern River Mt. Poso McKittrick Round Mt.	Greeley Rio Bravo	Wheeler Ridge	Coles Levee	Kettleman Hills	Gravity
10.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$.43	....	....	....	....	....	....	....	....	....	....	10.
11.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.45	....	....	....	....	....	....	....	....	....	....	11.
12.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.47	....	$.64	....	....	....	$.64	....	....	....	....	12.
13.	....	$.62	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.49	....	.66	....	$.66	$.66	.66	....	....	....	....	13
14.	....	.63	$.65	....	$.66	....	....	....	....	$.65	....	$.65	$.65	$.67	$ .65	....	.51	....	.68	$.68	.68	.68	.68	....	....	....	....	14.
15.	....	.64	.68	....	.67	$.70	....	....	....	.66	....	.65	.65	.67	.65	....	.53	....	.68	.68	.68	.68	.68	....	....	....	....	15
16.	....	.65	.70	....	.69	.73	....	....	....	.68	....	.66	.66	.67	.66	....	.55	$.68	.68	.68	.68	.68	.68	....	....	....	....	16.
17.	....	.68	.73	....	.70	.76	....	....	....	.71	....	.68	.68	.67	.66	....	.57	.69	.68	.68	.72	.68	.68	....	....	....	....	17.
18.	$.74	.71	.75	....	.72	.79	....	....	$.70	.74	....	.71	.71	.67	.67	....	....	.70	.72	.68	.75	.68	.68	....	....	....	....	18.
19.	.78	.75	.79	....	.75	.82	....	....	.72	.77	....	.75	.73	.68	.68	....	....	.71	.75	.68	.78	.68	.68	....	....	....	....	19.
20.	.82	.80	.83	....	.79	.86	....	....	.75	.81	....	.79	.76	.70	.70	....	....	.75	.79	.70	.81	.70	.68	....	....	....	....	20.
21.	.86	.85	.87	....	.84	.89	....	....	.79	.85	....	.82	.79	.74	.73	....	....	.79	.84	.73	.84	.73	.70	....	....	....	....	21.
22.	.90	.89	.91	.77	.88	.92	....	....	.82	.89	....	.86	.83	.78	.76	....	....	.83	.88	.76	.87	.77	.72	....	$.71	....	....	22.
23.	.94	.93	.94	.83	.93	.95	....	....	.86	.93	....	.89	.88	.82	.79	....	....	.86	.93	.80	.90	.80	.74	....	.74	....	....	23.
24.	.97	.97	.98	.88	.97	.98	....	....	.90	.97	$.93	.93	.92	.86	.82	....	....	.89	.97	.84	.93	.83	.76	....	.77	....	....	24.
25.	1.01	1.02	1.02	.94	1.00	1.01	....	....	.94	1.01	.96	.97	.96	.90	.85	....	....	.92	1.01	.88	.95	.86	....	....	....	....	....	25.
26.	1.05	1.06	1.05	.99	1.03	1.04	....	....	.98	1.05	1.00	1.01	1.01	.94 .98	.88	....	....	.94	1.06	.91	.98	.89	....	....	....	....	....	26.
27.	1.09	1.10	1.09	1.04	1.07	1.08	....	$1.04	....	1.09	1.04	1.04	....	.981.02	.91	....	....	....	1.10	.95	1.01	.92	....	....	....	....	....	27.
28.	1.13	1.14	1.12	1.08	1.10	1.11	$1.01	1.07	....	....	1.07	1.07	....	1.011.06	.94	....	....	....	1.14	.99	1.04	.95	....	....	....	....	....	28.
29.	1.16	1.17	1.15	1.13	....	1.14	1.05	1.10	....	....	1.11	....	....	1.051.09	.97	....	....	....	1.19	1.02	1.06	.97	....	....	....	....	....	29.
30.	1.20	1.21	1.19	....	....	1.17	1.09	1.15	....	....	1.15	....	....	1.081.13	1.00	Ship	....	....	1.23	1.05	1.09	1.00	....	....	$.95	....	$1.03	....	30.
31.	....	....	....	....	....	1.20	1.13	1.19	....	....	1.18	....	....	1.121.16	1.02	FOB	....	....	....	1.09	1.10	1.02	....	....	.99	....	1.06	....	31.
32.	....	....	....	....	....	....	1.17	1.24	....	....	1.22	....	....	1.161.19	1.05	....	....	....	....	1.12	1.11	1.05	....	....	1.02	....	1.09	....	32.
33.	....	....	....	....	....	....	1.21	1.28	....	....	....	....	....	1.20	1.07	$1.19	....	....	....	....	1.12	1.07	....	....	1.05	....	1.12	....	33.
34.	....	....	....	....	....	....	1.25	1.32	....	....	....	....	....	1.25	1.10	1.23	....	....	....	....	1.13	1.10	....	....	1.09	....	1.15	....	34.
35.	....	....	....	....	....	....	1.27	1.34	....	....	....	....	....	1.30	1.12	1.26	....	....	....	....	1.14	....	....	....	1.12	....	1.18	$1.19	35.
36.	....	....	....	....	....	....	....	1.36	....	....	....	....	....	1.34	1.15	....	....	....	....	....	1.15	....	....	....	1.16	....	1.21	1.23	36.
37.	....	....	....	....	....	....	....	1.38	....	....	....	....	....	1.39	1.19	....	....	....	....	....	1.16	....	....	....	1.19	....	....	1.26	37.
38.	....	....	....	....	....	....	....	1.40	....	....	....	....	....	1.43	....	....	....	....	....	....	1.17	....	....	....	1.22	....	....	1.27	38.
39.	....	....	....	....	....	....	....	1.42	....	....	....	....	....	1.47	....	....	....	....	....	....	1.18	....	....	....	1.24	....	....	1.28	39.
40.	....	....	....	....	....	....	....	1.44	....	....	....	....	....	1.50	....	....	....	....	....	....	1.19	....	....	....	1.26	....	....	1.29	40.
41.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.28	....	....	....	41.
42.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	42.

Payments for crude oil will be made on the basis of the gravity of the oil at 60°F., determined in accordance with ASTM Method D287-39 or the latest revision thereof, and prices for gravities between those quoted will be calculated proportionately to the nearest cent per barrel.

which was issued by the Mining Bureau as Bulletin 89, "Petroleum Resources of California."

From 1935 until the middle of 1940, Mr. Vander Leck was active in the voluntary conservation program of the California industry as chairman of the Central Committee of California Oil Producers, the predecessor committee to the present Conservation Committee of California Oil Producers. He is now a member of the Conservation Committee and a director of both the California Oil and Gas Association and the Independent Petroleum Association of America.

Other officers elected at the Annual Meeting included Rush M. Blodget, who has been general manager and executive vice president of the Agency since its organization by a number of independent oil producers in the chaotic days of 1932, and who was again re-elected to that position.

Four vice presidents of the Agency were also elected, three of them being re-elected. Re-elected were M. A. Machris, Bandini Petroleum Company; L. A. Cranson, Honolulu Oil Corporation; and C. A. Johnson, Holly Development Company. C. P. Watson, Seaboard Oil Company, who has been an Agency director for the past several years, was newly elected a vice president. W. A. Russell, Seaboard Oil Company, was re-elected Secretary-Treasurer and D. P. Murdy, Bandini Petroleum Company, Assistant Secretary-Treasurer.

Four new directors were elected by the Agency members. They are: Dwight G. Vedder, Vedder Petroleum Corporation; Dewitt Knox, MacMillan Petroleum Company; W. D. Waltman, Franco-Western Oil Company; and Cecil Rood, of the McVicar-Rood group.

Eight directors whose terms had expired were re-elected. They are; A. E. Bell, A. E. Bell Corporation; Rush M. Blodget; L. A. Cranson, Honolulu Oil Corporation; J. J. Doyle, Doyle Petroleum Company; W. H. Geis, Arrowhead Oil Company; R. E. Havenstrite, California Western Oil Company; C. A. Johnson, Holly Development Company; and Lawrence Vander Leck, Fullerton Oil Company.

Paloma Field Unitization Near

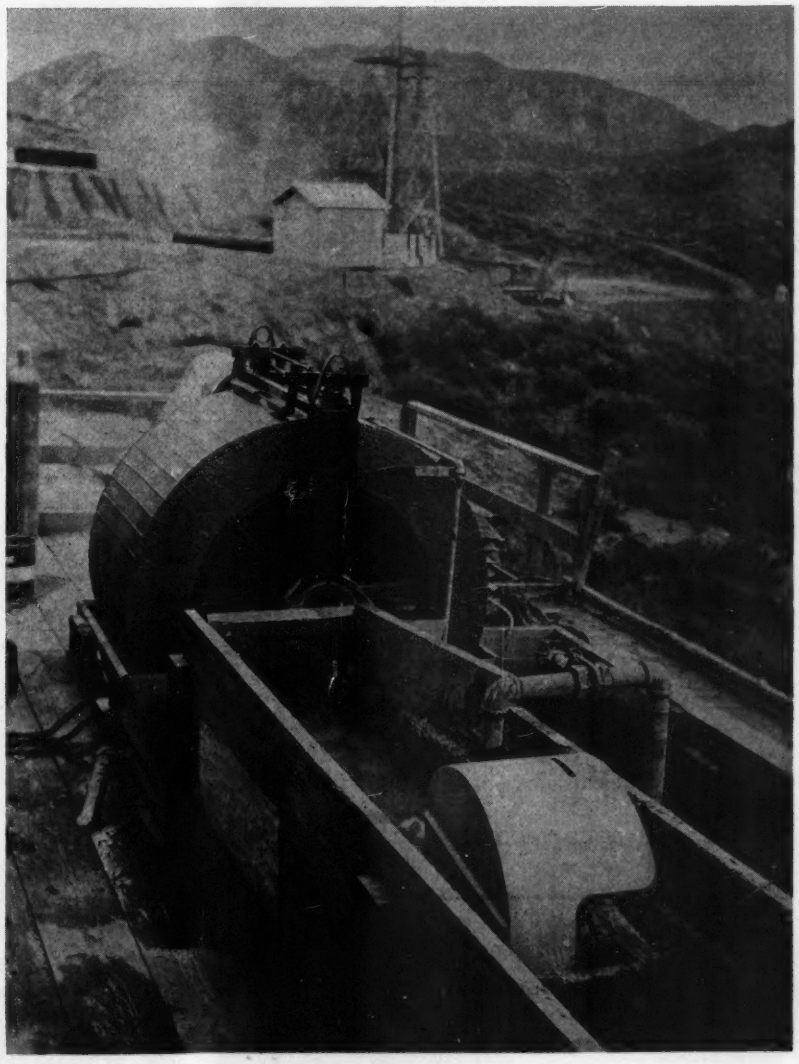
At a meeting of the Paloma operators held April 30, the tentative agreement for a unit plan was presented and approved in its present form, and the area to be taken in, by 84% of the acreage represented in the proposed unit. This course is subject to ratification by the land owners.

Copies of the agreement are being distributed to the operators for transmittal to the land owners so that they may study the proposed plan. Representatives of operators of the remaining 16% were not authorized to commit their companies at this time, requiring more study of the plan.

The plan has a participating area, around which is a controlled area, which must be taken into the unit when proved productive, if held by an operator in the participating area.

To encourage testing the controlled area to determine the extent of the field, a bonus is provided for

(Continued on Page 23)



Looking over the mud sampler and shaker at Lincoln No. 3, Del Valle, you see Universal Consolidated's try in the near distance.

Production « « « «

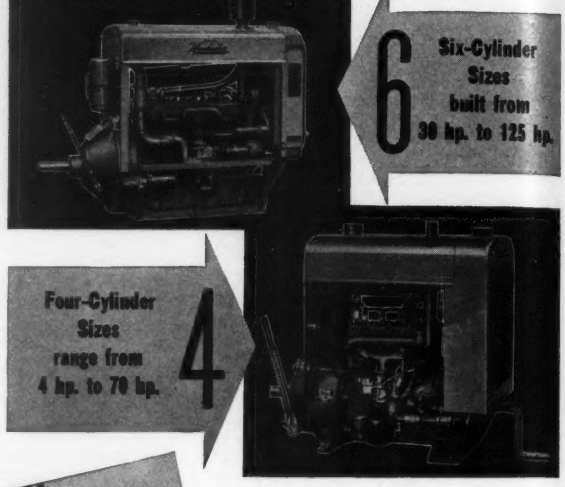
(Figures of Production and Stocks are in barrels of 42 Gals.)

	Total Production March	—DAILY AVERAGE— Mar., 1941	Feb., 1941	Mar., 1940
Group No. 1				
Arvin	22,006	710	890	2,271
Belridge—North	302,762	9,766	9,890	11,077
Belridge—South	64,209	2,071	2,112	1,974
Canal	157,390	5,077	5,056	5,668
Canfield Ranch	1,363	44	45	48
Coalinga	1,071,744	34,572	33,666	23,178
Cole's Levee	164,871	5,318	5,252	3,346
Edison	85,586	2,761	2,803	2,256
Elk Hills	370,072	11,938	12,021	12,446
Fruitvale	160,163	5,167	5,400	5,758
Greeley	180,159	5,812	5,406	3,440
Kern River	325,406	10,497	10,876	11,017
Kettleman North Dome	1,203,142	38,811	39,069	47,437
Lost Hills	104,835	3,382	3,253	4,191
McKittrick	111,180	3,586	3,614	3,554
Midway-Sunset	1,467,720	47,346	47,903	52,136
Mountain View	167,054	5,389	5,565	6,683
Mount Poso	275,473	8,886	9,132	9,435
Paloma	7,095	229	488	182
Rio Bravo	359,885	11,609	11,516	7,996
Round Mountain	235,497	7,596	7,376	7,376
Strand	41,188	1,329	1,354	1,416
Ten Section	394,755	12,734	12,876	8,701
Tupman	244,802	7,897	7,735	1,087
Union Avenue	2,870	93	127	.....
Wasco	55,392	1,787	1,808	1,291
Wheeler Ridge	8,473	273	292	308
Group No. 2				
Capitan	55,446	1,789	1,728	1,916
Elwood	99,487	3,209	3,120	3,833
Rincon	127,824	4,123	4,650	3,761
San Miguelito	118,007	3,807	3,819	3,048
Santa Barbara	6,118	197	224	331
Santa Maria	191,251	6,169	4,479	4,620
Santa Maria Valley	564,789	18,219	20,145	12,405
Summerland	446	15	8	28
Ventura Avenue	1,048,713	33,830	33,826	34,307
Ventura-Newhall	345,399	11,142	11,220	7,377
Watsonville	775	25	25	25
Group No. 3				
Brea-Olinda	176,499	5,693	5,549	5,618
Coyote—East	112,984	3,645	3,586	3,341
Coyote—West	270,376	8,722	8,522	6,514
Domingues	671,584	21,664	21,413	19,452
El Segundo	46,325	1,494	1,539	2,379
Huntington Beach	838,751	27,057	27,284	27,320
Inglewood	364,621	11,762	11,651	12,865
Lawndale	883	28	30	44
Long Beach	1,296,024	41,807	42,241	44,295
Los Angeles-Salt Lake	14,825	478	585	527
Montebello	462,030	14,904	14,765	20,355
Playa Del Rey	116,853	3,769	3,687	4,240
Potrero	72,031	2,324	2,182	1,701
Richfield	218,801	7,058	7,252	9,227
Rosecrans	324,104	10,455	11,130	9,720
Santa Fe Springs	743,279	23,977	24,262	25,876
Seal Beach	197,242	6,363	6,386	7,320
Torrance	271,681	8,764	9,277	12,035
Whittier	6,638	214	223	1,001
Wilmington	2,554,037	82,388	82,434	82,581
Total	18,902,915	609,771	612,767	602,334
February	17,157,481	612,767		
Decrease(*Increase)	1,745,434*	2,996		

SUMMARY OF CALIFORNIA OILFIELD OPERATIONS FOR MARCH 1941—STOCKS HELD IN PACIFIC COAST TERRITORY BY CALIFORNIA OIL COMPANIES

	Mar. 31, 1941	Feb. 28, 1941	March Changes	Mar. 31, 1940
1. Gasoline-Bearing Crude	37,352,395	36,894,684	+ 457,711	35,804,861
2. Non-Gasoline-Bearing Crude	11,792,267	11,898,116	− 105,849	13,499,792
3. Unblended Nat. Gas	2,193,595	2,387,923	− 194,328	1,875,107
4. Gasoline (not including distributing and service stations)	15,551,189	15,458,793	+ 92,396	17,712,442
5. Naphtha Distillates	1,751,744[1]	1,901,437[1]	− 149,693	1,565,034[1]
6. Gas Oil and Diesel Oil	10,052,046	9,944,385	+ 107,661	9,326,881
7. Fuel Oil Residuum	56,874,162	57,941,724	−1,067,562	64,947,259
8. All Other Stocks	8,413,366[2]	8,358,741[2]	+ 54,625	8,388,953[2]
	143,980,764	144,785,803	− 805,039	153,120,329
[1]Estimated amount of unfinished gasoline contained in item 5	1,590,043	1,732,317		1,366,700
[2]Coke included in item 8	475,862	488,858		1,146,960

your FREE GAS PUMPS your OIL



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WAUKESHA *Pumping* ENGINES

C.N.G.A. June Frolic At Riviera June 7

Strange, indeed, will be the terminology used by men in the natural gasoline and allied industries on Saturday, June 7, 1941. Par, bogie, strike, smash and skol will then replace such customary terms as super-expansibility, down-stream-absorber and K-factors for on that date, the 1941 June Frolic of the California Natural Gasoline Association will be held at the Riviera Country Club, Santa Monica. This is the announcement of H. E. Leedy of the Crane Co. who heads the committee staging this year's frolic along with J. B. Taylor of The Texas Co., chairman of the CNGA program committee.

Golfers desiring to pit their skill against the sporty Riviera course will begin teeing off at 8:30 in the morning and continue until 1 P.M. Flight reservations are necessary and these must be made in advance. Green fee of $1.50. There will be prizes for low gross, low net, blind bogie and special flight awards.

The fact that not everyone plays golf has been taken into consideration with the result that the entire afternoon program has been so arranged that everyone, even rocking-chair sports who want to sit and swap stories on the veranda, can participate. For those more active there will be such events as volley ball, badminton and horseshoes with the Long Beach "spit-and-toss" contingent from Bixby Park out to avenge themselves for the amazing shellacking dished out last year by the long shot "dust belchers" from the San Joaquin Valley. A long drawn out feud of many years standing, likewise, will be resumed with the "Majors" still trying to wallop the inevitable diamond champs, the "Independents" in the customary game of baseball. And all through the afternoon, dry palates will be lubricated at the regular old beer barrel which will again be on tap to quench the thirst of dry throats. Entertainment will be provided during the afternoon by a cowboy band of Texas Rangers. For those who will arrive at the crack of dawn to make a day of it, an a la carte luncheon will be served.

The evening session will be given over to even less serious events, starting off with a banquet specially prepared with palate-tempting viands served up by Riviera's chef d'cuisine. The entire event will be climaxed with a stag show paced to a laugh and thrill-a-minute with acts of skill, dazzling beauty and melodious harmony providing the entertainment.

Other than Mr. Leedy, the 1941 Frolic committee consists of Gordon Greene, Robinson Orifice Fitting Co., Walt Landis, Crane Co., George Christian, Crosby Steam Gauge and Valve Co., Harry Fiske, Ingersoll-Rand Co., Glenn Gill, J. B. Gill Corp., and Harold Dresser, Fluor Corp.

Those desiring to make golf or banquet reservations or desiring general information about the entire event are advised to communicate with George L. Tyler, Secretary, CNGA, 510 West 6th St., Los Angeles.

Petroleum Accountants Hold Dinner Meeting

The Petroleum Accountants Society held its monthly dinner meeting May 1, at the University Club.

John F. Dodge, professor of Petroleum Engineering at the University of Southern California, spoke on "New Factors Influencing the Production and Utilization of Natural Gas in California."

Chairman for the evening was R. C. Mallery, Dominguez Oilfields, Ltd.

William A. Russell, Seaboard Oil Company, is president of the Society.

Los Angeles Nomads Standing Committees

E. B. Fowks, president of the Los Angeles Chapter of Nomads, announces the following committee selections:

Executive Committee.

This committee, in accordance with the Constitution, is made up of the current officers and the immediate past president.

E. B. Fowks, president; W. F. Bettis, vice president; E. M. Rees, secy-treasurer; E. R. Smith, asst. secy-treas.; R. J. Eiche, sergeant-at-arms; Roy Hitchcock, deputy Sgt.-at-arms, and Ted Sutter, immediate past president.

Membership, Ritual and Induction Committee.

The Constitution provides for two committees, namely, the Membership Committee, and the Ritual and Induction Committee. It was decided some time back to combine these two committees. The Constitution also provides that the vice-president shall be chairman of the Ritual Committee.

F. C. Ripley, Jr., chairman; Wallace A. Sawdon; W. F. Bettis, In Charge of Ritual and Induction Ceremonies; J. C. Ballagh, and R. R. Smith, Induction Master.

All five members of this committee must pass on a candidate before his name is submitted to the general meeting for election.

Entertainment Committee.

It was decided to enlarge this committee so that the burden of arranging our functions and entertaining our guests would be distributed over a greater number of members.

R. J. Eiche, chairman; Roy Hitchcock, vice-chairman; Lou Bronzan, L. George Trembley, Roland E. Smith, G. Waldo Moore, Custer A. Morrow, Tom Murphy, and Knight Templeton.

Another reason for enlarging this committee is that it was decided that a larger committee was needed in order that there would be some members of the committee available to greet and to entertain guests before the general meeting when their hosts might be engaged in a business meeting. The members of the entertainment committee who will function in this regard are: Roland E. Smith, G. Waldo Moore, Custer A. Morrow, Tom Murphy, and Knight Templeton. In other words, the last five mentioned Nomads will be the official greeters under the direct supervision of R. J. Eiche.

The constitution provides that the president of a chapter shall ex-officio be a member of all committees.

It will be noted that the president, acting under the advice of the Executive Committee, has distributed the work to be done and the responsibility that goes with it over the membership as near as possible by the companies represented in the membership. This was thought advisable due to the fact that there has been some adverse criticism to the effect that members from only a few companies were doing a lot of the work.

In getting the Nomad Chapter started, it was necessary that those who were willing to do the work assume the responsibility. Now that they are well under way, they would like to distribute the work and the satisfaction that goes with it as evenly over the membership as possible.

The president asks that all members of the standing committees acquaint themselves with their duties as covered by the Constitution, and he says that all can be depended on to do their share of the work.

Malibu Stem Test Results Inconclusive

Sovereign Oil Corp.'s Malibu No. 1 on Point Dume is standing idle after results of a formation test from 4860 to 4980 ft. were pronounced inconclusive as only a little mud entered the drill stem. The hole is bottomed at 5650 ft. in what is believed to be San Onofre Breccia.

A newly-patented method of synthesizing aviation gasoline from isobutane and butane eliminates steps required by prior processes.

The Electric Exhaust Gas Analyzer

C. N. G. A. April 1941 Meeting

By T. A. Dunlap
Standard Oil Co. of Calif.

The past several years has seen instrumentation increasingly applied to internal combustion engine operation. Although the best example of this has probably been in the automotive engine field where the "trouble shooter" now has laboratory equipment in his shop for diagnosing engine ills, the heavy duty engine operator has also found the newer instruments useful in embellishing the story told by the thermometer, pressure gauge, and engine indicator.

This paper deals with an exhaust gas analyzer that developed in the automotive engine field. Use of this instrument has proved advantageous to us in several ways on our heavy duty engines. The purpose of this brief discussion is to outline to you those usages and point out some operating aids with respect to the instrument itself that have developed in our applications.

The essential function of this gas analyzer is to measure the thermal conductivity of the products of combustion, compare them with the thermal conductivity of air, and indicate this comparison on a galvanometer whose scale is calibrated to read directly in terms of pounds of air per pound of fuel. Thus, by attaching a sampling hose to the engine exhaust and flowing the products of combustion through the instrument the mixture strength is read directly.

The mechanism that performs this operation is a wheatstone bridge. (Fig. I) Three standard flashlight batteries energize the circuit. The reference "legs" of the bridge are the resistances 3 & 4 in the air cell. Resistances 1 & 2 are in the gas cell. The bridge balance is made with air in the gas cell—a condition which results in all four resistances being in air. When the exhaust gas flows through the gas cell the galvanometer indicates the change in electrical conductivity of the elements 1 & 2 with respect to elements 3 & 4. The reason that measuring this variation in electrical conductivity has any connection with the mixture strength of the fuel input to the engine is a fortunate relation, as far as this instrument is concerned, between the thermal conductivities of the various constituents of the products of combustion. The electrical conductors in the gas cells have their electrical conductivity changed by the rapidity with which the gas surrounding the wires takes heat away from the wires: that is, the electrical resistance of the gas cell is inversely proportional to the thermal conductivity of the gas.

Fig. II shows the constituents normally appearing in the products of combustion at various Air-Fuel ratios and Fig. III shows the respective thermal conductivities of these constituents. It will be noted that hydrogen has the very high thermal conductivity of 115 with respect to air's 16.6, while carbon dioxide's thermal conductivity of 12.4 is slightly lower than air. The conductivity of the rest of the constituents is very close to that of air. Carbon monoxide, 15.9; oxygen, 17.9, nitrogen, 16.9, and methane, 18.6.

It is obvious then that if the amount of hydrogen is increased the thermal conductivity of the mixture will be increased, or if the amount of carbon dioxide is increased, the thermal conductivity of the mixture will be decreased, whereas a change in the amount of the other elements will not effect the mixture conductivity very much. These two "controlling" constituents are related to the fuel mixture strength in that an engine operating on the lean side of normal combustion will have excess air, therefore excess oxygen, so that the products of combustion will be high in carbon dioxide content and low in free hydrogen. An engine operating "rich" will have insufficient air and oxygen for complete combustion and consequently will have more free hydrogen in the exhaust gas and less carbon dioxide. The net result is that increased hydrogen in the exhaust indicates a "rich" engine, and increased carbon dioxide indicates a "lean" engine. Thus a lean mixture is indicated by exhaust gas with a low thermal conductivity, and a rich mixture is indicated by high exhaust gas conductivity. With the galvanometer calibrated in terms of mixture strength we have a direct reading instrument.

In this paper we are not concerned with the absolute accuracy of this method of measuring mixture strength, and the intent of the foregoing description of operation is simply to give the general picture. In fact, this instrument if basically calibrated for engines using gasoline as a fuel, and for sampling the exhaust of engines fueled with natural gas a differential increment of approximately 1.5 must be added to the meter reading to get the true mixture strength values. We have found, however, that for our purposes the instrument used on a comparative basis is satisfactory.

To get consistent results, there are a few items with respect to operating technique that have developed in our use of the analyzer. The instrument has two connections for attaching rubber tubing. These are the inlet and outlet openings to the gas cell. The original intent of having a hose on the outlet connection was to provide a means of

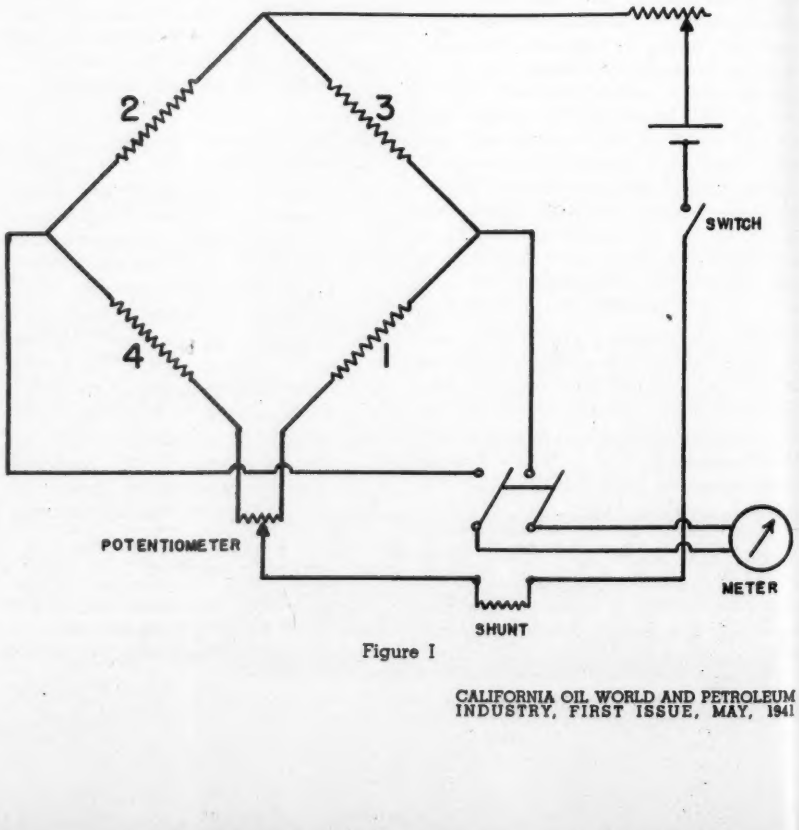

Figure I

FIG. II

Air Fuel Ratio	Completeness of Combustion	Composition of Exhaust Gas in Per Cent					
		CO_2	O_2	CO	CH_4	H_2	N_2
9.0	50	5.7	1.1	13.0	1.7	7.0	71.5
9.6	53	5.9	1.0	12.8	1.4	6.5	72.4
10.1	55	6.7	1.0	11.2	1.4	5.8	73.9
10.6	57	7.5	1.2	9.8	1.4	4.8	75.3
11.0	62	8.2	0.8	8.9	1.1	4.4	76.6
11.5	67	8.9	0.7	8.0	0.8	3.9	77.7
12.0	71	9.4	0.6	7.0	0.7	3.2	79.1
12.6	75	10.4	0.4	5.9	0.7	2.4	80.2
13.1	78	10.7	0.9	4.6	0.8	1.6	81.4
13.5	81	11.5	0.6	3.8	0.6	1.3	82.2
13.9	87	12.9	0.3	1.9	0.4	0.8	83.7
14.5	95	13.4	0.1	1.2	0.1	0.2	84.0

(From Ind. and Eng. Chem.—Vol. 20, P. 902, 1928.).

FIG. III

Thermal Conductivity in Btu/hr/sq. ft./°F/ft.x1000 at 212°F.	Gas					
Air	CO_2	O_2	CO	CH_4	H_2	N_2
16.6	12.4	17.9	15.9	18.6	115.0	16.9

taking the products of combustion, particularly the condensed water vapor, out of the cab on the truck or auto that was being tested. When we first started to use the instrument on our heavy duty gas engines in their large and well ventilated engine rooms, where a small amount of water is a very minor consideration, we saw no need for this discharge hose. Our results were not consistent and seemed to indicate that either our mixing boxes were very poor affairs indeed or that the analyzer could not be used on that type of engine. The action of the instrument itself was finally the clue that pointed out that on these comparatively slow speed engines the time interval is long enough between cylinder exhausts for air to be drawn back into the analyzer. This occurred whenever the pressure surge in the exhaust reached a point below atmospheric pressure. Thus part of the gas whose electrical conductivity we were measuring was air that had never been in the engine cylinder. This difficulty was easily overcome by attaching about three feet of "tailpipe" on the outlet connection so that although air is drawn into the hose on the low point of the pressure surge, that air is blown out again before it gets as far back as the gas cell.

This negative exhaust line pressure allows air to come back into the exhaust pipe itself, which, coupled with the desirability of getting the sample at a point in the pipe where the gas is very turbulent, makes it advisable to connect the sampling hose as close to the engine as is possible.

It is also obvious that the conductivity of the gas will vary with pressure: increasing with increased pressure, decreasing with decreased pressure. The existence of pressure surges in the instrument, then, causes the indicating needle to fluctuate. We find that a static reading can be made and consistent results obtained by pinching the inlet hose two to three feet ahead of the instrument just before taking a reading.

To date, we have not been troubled by having fuels that contain appreciable quantities of foreign material whose conductivity would tend to give erroneous readings. Such a material could be hydrogen sulfide, whose presence in the fuel in any appreciable quantity would tend to make the instrument read lean since both hydrogen sulfide and sulphur dioxide have low thermal conductivities.

There are many places where the analyzer has proved useful to us. For example, the effectiveness of mixing box operation can be checked to see how well the mixture is controlled under varying load. Or on a multi-cylinder engine the distribution of the charge between cylinders can be quickly observed by testing the exhausts from each cylinder.

Once the optimum mixture strength for a particular engine has been ascertained, either by indicator card analysis or by previous experience with that engine over a period of time, it is a simple matter to adjust all engines of that type to that mixture. The reference to "a particular engine" is made advisedly because there seems to be no one mixture that suits all engines. In fact, one of our old type horizontal engines seems to completely ignore the mixing box setting. In the mixing box range where the engine will run at all satisfactorily, the analyzer reading stays the same from the "full rich" mixing box setting to the "full lean" position. In other words the engine knows how much fuel it wants and takes it, regardless of how much the operator trys to give it.

The analyzer can of course be effectively used in controlling fuel consumption. This ability is of particular advantage during a fuel consumption test where more accurate results can be obtained by adjusting the mixture with the instrument during the test.

Recently we have had considerable success with this device in balancing a horizontal double acting tandem engine. In this engine each cylinder has three independent variables to adjust in getting a balance: mixture quality, mixture quantity, and ignition timing. Use of the analyzer substantially eliminates the mixture quality as a variable and helps greatly in adjusting the other two variables to the proper point. As you know, the indicator balance on this type of engine starts with an original "static" setting of gas quantity and quality, and of ignition and valve timing, and ends up with an attempt to "juggle" the three above-mentioned variables on all of the cylinders while the engine is running. This is a tedious process. Moreover, since the major part of the balance between cylinders is made by regulating the mixture quality, the result is a different air fuel ratio in each cylinder. This often means that when the load increases on the unit the lean cylinders will develop hot spots and "knock", and when the load decreases the rich cylinders will fall down so that the lean cylinders again take too much of the load. With the exhaust gas analyzer to aid the indicator in the balance, the "static" setting is still the starting point but the mixture quality to the various cylinders can be adjusted to the same point with the analyzer. The division of load between the cylinders can then be regulated by controlling the quantity of gas to get the indicator cards the same size. With the mixtures at the same point it is much easier to adjust the ignition timing—knowing that what looks like early ignition on the card is early ignition and not too lean a mixture.

Figures 4 & 5 show two sets of indicator cards taken on a tandem engine. Those in Fig. IV were taken after a balance had been made with the indicator alone. Those of you who work with this type of engine will agree that this is a fair balance, yet the mixture strength readings show a variation from 14.2 to 1 to 10.8 to 1. The cards on the right side show a balance made on the same engine using the analyzer in conjunction with the indicator. Here the cylinders show essentially the same degree of richness and the cards have been sized by adjusting the quantity of charge rather than the quality. This latter balance varies less with load and is attained with much greater ease.

In starting up this engine recently the only fuel header pressure that would give satisfactory operation was 1" of

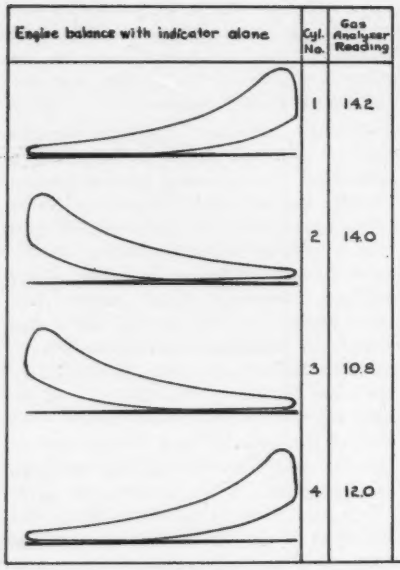

Figure IV

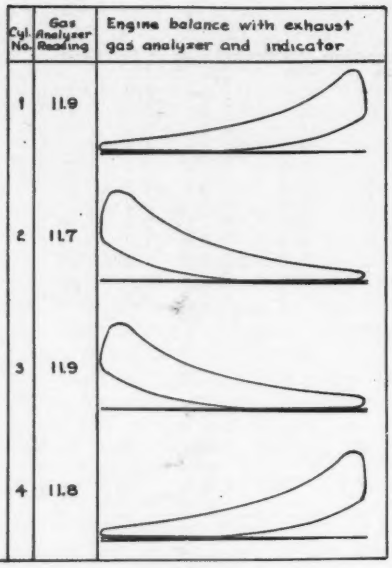

Figure V

water vacuum. This obviously resulted in a differential pressure between the air and gas at the gas valve that was not conducive to a good engine balance as the load changed. To raise the pressure using the indicator alone would have been an "inch-by-inch" proposition in order to keep some cylinder from getting too hot and possibly cracking. With the exhaust analyzer and the indicator, the fuel pressure was raised to the desired point in three steps with no fear of getting one cylinder too hot because of the close control that could be maintained on the fuel mixture. This, then, is a case of using an instrument to advantage on an engine which is certainly the extreme opposite of the type of engine for which the device was developed.

Summarizing—the instrument is useful in gas engine operation because it is direct reading, is easy to use, gives consistent results, and is a helpful tool in many gas engine "trouble shooting" problems.

The Usefulness of Metal Spray

By A. A. Quarnstrom
Richfield Oil Corp.

I am going to devote the few minutes allowed me to the showing of slides, with comment here and there, but before the first slide is shown let me repeat a statement upon which there seems to be general agreement among those who know something about metal spraying.

Metal spraying is in no sense to be regarded as a universal cure-all. There is, however, a definite field wherein certain mechanical conditions and problems are most satisfactorily solved with metal spraying.

Sprayed metal deposits should not be considered where they will be subject to sharp impact, rugged abrasions or edge strain. But when subjected to continued vibration, with full bearing surface, such as on crankshafts, the process is satisfactory.

Slide No. 1 will serve to illustrate a typical set-up for building up the bearing surfaces of a crankshaft. Although the surfaces which have been sprayed appear hot, such is not the case. One distinct advantage peculiar to the process is there is little heating of the object with the consequent danger of warping. The surfaces are usually ground to size.

Slide No. 2 shows how some of the larger pieces may be sprayed. Two guns were employed to cut down the time consumed in the operation. The wire feed, oxygen, acetylene and air hoses required by all spray guns are evident. This particular make of gun employs an electric motor and reduction gear to feed the wire into the melting flame and atomizing air jet at the proper rate. Some guns use an air driven turbine instead of the electric motor.

Slide No. 3 is a close-up view of a shaft prepared for spraying by turning a coarse thread on it. The preparation of the surface of the base metal is a major factor determining the success or failure of a job. The bond between the base metal and sprayed metal is entirely mechanical in character, and not fused as in welding. The strength of the bond relies on the key-locking of the molten particles in the pores of the base metal. The particular method illustrated here, which is patented, tears the metal instead of cutting it and exposes a rough surface.

Slide No. 4. A stainless steel coated reciprocating pump rod and two aluminum pistons with sprayed steel wearing surfaces. The larger piston is from a diesel engine; the smaller from a Dodge truck. Both have given plenty of service. The diesel was discarded because of worn spots at the ends of the wrist pin holes. A similar job was cured by building up these holes by spraying.

Slide No. 5. A close-up of the two pistons showing the grooving of the base metal.

Slide No. 6. Two 16" diameter power pistons from a 165 HP twin direct connected compressor unit. They were both put in service in 1937 and saw three and a half years of continuous duty before removal for this inspection. The one on the left was sprayed with high carbon steel. The right was an ordinary piston. Wear was negligible in both, though as the picture indicates, the sprayed piston shows no scoring.

Slide No. 7 is the R. H. cylinder showing some scores similar to its piston.

Slide No. 8 is the L. H. cylinder and it was not scored appreciably. Both cylinders showed approximately 0.012" wear in the three and one-half years.

Slide No. 9 shows an exhaust valve where the spray job failed. It may have been due to the preparation of the surface, and again it may have been due to difference in expansion of the two metals.

Slide No. 10 shows close-up view of failure.

Slide No. 11 shows built-up bearing surfaces of Western Engine crankshaft.

Slide No. 12 shows stainless steel coated hot oil pump plunger.

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Slides illustrated on opposite page.

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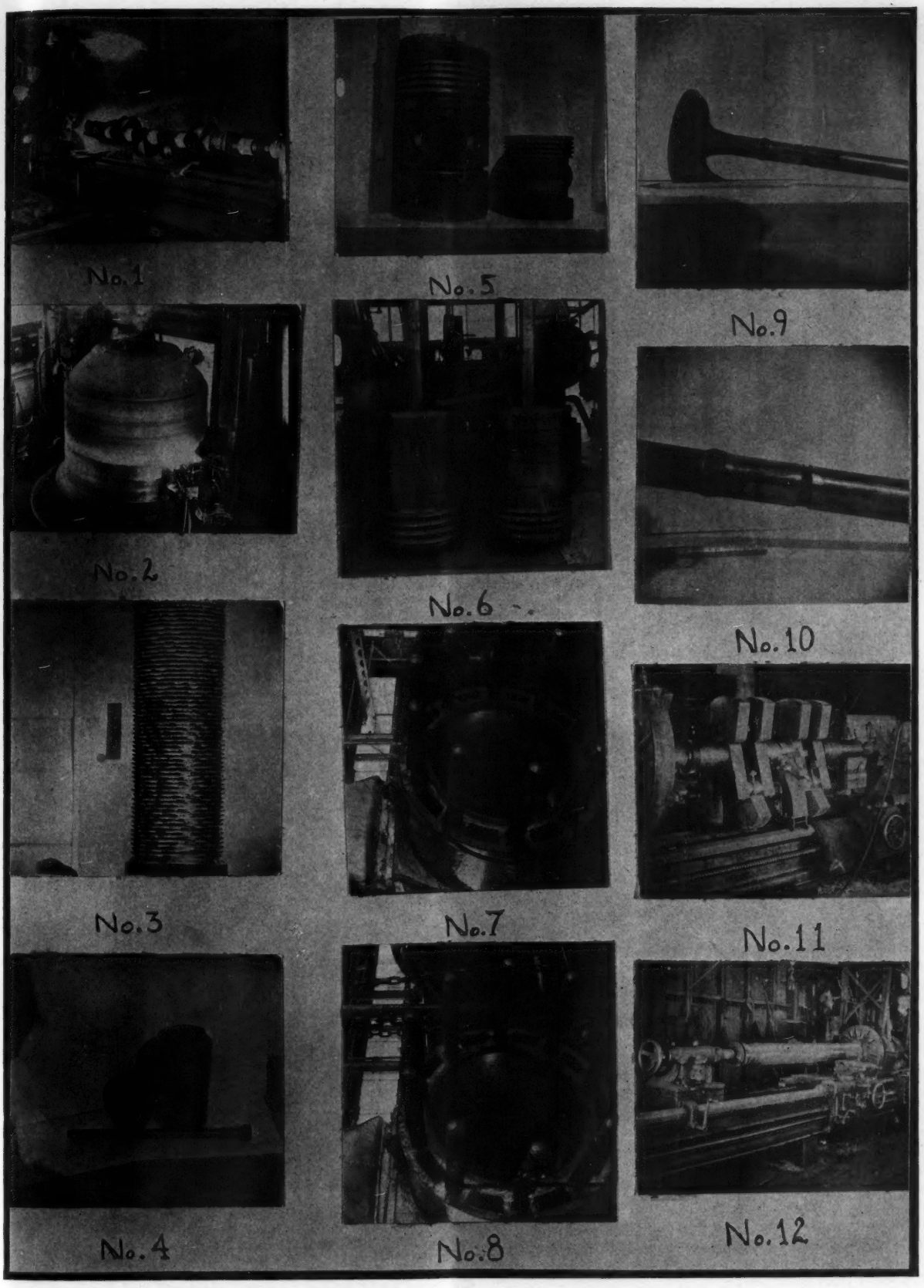
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No. 12

Kremser Wins Hanlon Award

The Hanlon Award, highest honor in the natural gasoline industry and one of the ranking merit awards in the petroleum industry was conferred on Alois Kremser, assistant director of research and development, Standard Oil Co. of California, San Francisco, at the Twen-

Alois Kremser

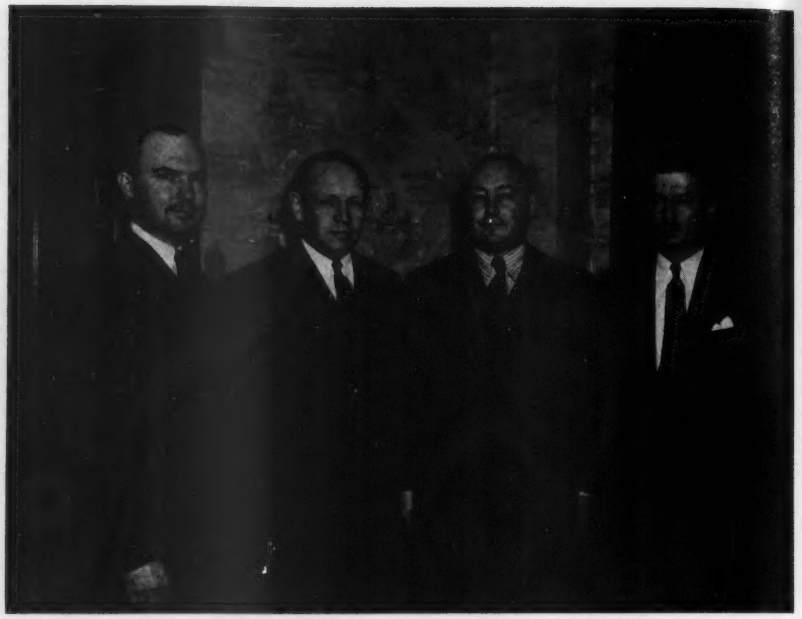
tieth Annual Convention of the Natural Gasoline Association of America at the Baker Hotel, in Dallas Texas.

Mr. Kremser was the fifth recipient of the Hanlon Award which is conferred each year at this convention for outstanding meritorious service to the natural gasoline industry.

Presentation was made by George P. Bunn, Phillips Petroleum Co., president of the Natural Gasoline Association in the crowded main ballroom of the hotel. The citation of merit read in part: " . . . To your original formula for analyzing mathematically the operation of the absorption process, we owe much of our present understanding of stripping, rectification and heat transfer, all of which are fundamental elements in the production of natural gasoline and liquefied petroleum gases."

Mr. Kremser is a native of Austria where he graduated from the University of Vienna as a mechanical engineer in 1912. Following one year as an instructor at this institution, he went to Japan where he engaged in engineering work until the outbreak of the first World War when he came to the United States. He is widely known in the petroleum industry though most of his work has been along the Pacific Coast where he entered the engineering department of the Standard Oil Co. in 1922. His work has gradually broadened and he assumed his present position in 1931.

His original work on absorption theory was presented through the California Natural Gasoline Association.

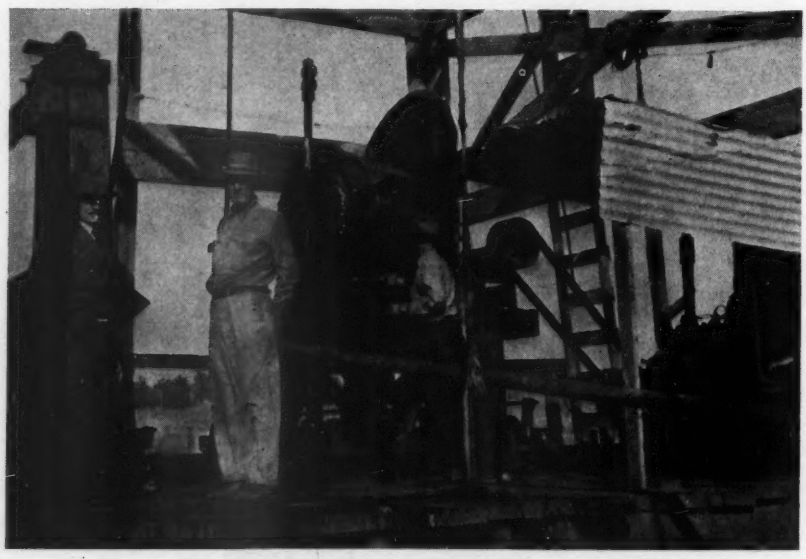


An International Nomads meeting has been scheduled to be held in Tulsa, May 20, during the spring meeting of the A. P. I., to plan for the program for international delegates to the International Petroleum Exposition in Tulsa, May 16 to 23, 1942. Arrangements for the May 20 meeting were made during the recent visit in Tulsa of Ted Sutter, general manager of Baker Oil Tools, Inc., and international president of the Nomads. In the photo, left to right, are: Leslie Brooks, publicity director of the International Petroleum Exposition, Gerald Westby, vice-president of the Tulsa Nomads, Ted Sutter, and W. G. Green, Tulsa Nomads president. Nomads from the Los Angeles, Houston, New York, and Tulsa chapters as well as international buyers will be invited to the May 20 meeting.

Roy Young Locates Conroy Area Wildcat

Roy W. Young, Inc. has staked a location for Walker No. 1 in the southeast quarter of sec. 11,4-16 in the Conroy area northeast of Saugus. The site is about 500 ft. northeast of Milham Exploration Co.'s Conroy No. 2 which was abandoned at 3985 ft. many years ago.

Low-cost raw material for making man's hormones are natural gas, coal, acetylene, limestone, and water.



C. C. Sumpter and Thornton Wintz supervise the installation of a new pumping unit on California National Oil Co.'s East Coyote well.

THIS LAUGH

OFF!!

Hank Banning tells this one:

A new maid had just arrived from the country, and her mistress was giving her a number of instructions pertaining to requirements of the household.

"Do not forget, Martha, we want a new griller for the kitchen. You know what a griller is, of course?"

"Course I do. It's a big hairy monkey, and if you have one of those in the kitchen, I'm leaving right now."

We overheard **Fritz Steiner** telling this timely tale:

"Raise the right leg and hold it at right angle to the body," commanded the sergeant.

A recruit raised his left leg by mistake, so that it was extended close to the right of a man on his left.

"Who's that raising both legs?" the sergeant bellowed.

Sam Dolman culled this limerick:

There was once a fisher named Fisher
Who fished from the edge of a fissure,
But a fish with a grin
Pulled the fisherman in
Now they're fishing the fissure for Fisher.

We are indebted to **P. R. Gorham** for the following description of an encounter Montana way: (Thanks, Sunburst Badger)

"Saw a guy near Billings plowing with an old team of mules. Every few feet he would stop and make an imaginary motion like cracking a whip, then, like putting it in the furrow. I stopped and asked him what he was doing. He said he was snapping heads off of snakes. 'You see,' he said, 'snakes make awfully good fertilizer. The more fertilizer the more corn. The more corn, the more moon. The more moon, the more snakes. So it just goes around and around.'"

And here's one **Punk Paulson** picked up:

It was a beautiful spring morning and the cute little baby bird crawled up on the edge of his nest, chirped twice, spread his wings and took off. He was gone over an hour and mother bird was anxiously waiting when she saw him limping in, one wing down. His beak was battered, one eye blackened, his tail feathers broken and drooping.

"Wherenell have you been," asked mother bird.

Hanging his head the little birdie replied, "I was flying back through the park and got mixed up in a badminton game."

An old negro was complaining that the railroad would not pay him for his mule, which it had killed, nay, would not even give him back his rope.

"What rope?" he was asked.

"Why, sah," he answered, "de rope dat I tied de mule on de track wif."

And here's one from **Al Bell, Jr:**

The engineer had become tired of the boastful talk he had heard from the other engine drivers at his boarding house. One evening he began: "This morning I went over to see a new machine we've got at our place, and it's astonishing how it works."

"And how does it work?" asked one.

"Well," was the reply, "by means of a pedal attachment a fulcrumed lever converts a vertical reciprocating motion into a circular movement. The principal part of the machine is a huge disc that revolves in a vertical plane. Power is applied through the axis of the disc, and work is done on the periphery, and the hardest steel by mere impact may be reduced to any shape."

"What is this wonderful machine?" he was asked. "A grindstone," was the reply.

And, of course, this one has to be **Charley Chandler's:**

Papa Robin says to Mama Robin: "Anything happen this morning, honey?" Mama Robin says, "Look" and there it was a pretty blue egg. Papa Robin was tickled no end and flew off to gather more worms. Coming back at noon he says "Momma, anything else happen this morning?" Mama Robin says, "Look!" and sure enough, another blue egg. Papa Robin was so happy he fairly beamed and flew away, the happiest robin in all the world. Making a three point landing by the nest later in the evening he coyly asked Mama Robin if anything else had happened. Mama Robin said, "Look!" and this time there was a little brown speckled egg. Papa Robin grew furious and bellowed, "What the heck's coming off here? How did this happen?" And Mama Robin replied, "I did it for a lark."

Names used on this page are entirely fictitious, and any resemblance to persons either living or dead is purely coincidental.

WEIGHT INDICATOR POINTS
When operators report up to 100 feet MORE per bit after installing the "Sealtite", we're more positive than ever that there's plenty to this business of drilling control.
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MARTIN-DECKER CORP., LONG BEACH, CALIF.

Field Development

Los Angeles Basin

Prison Well Suspended; Barnsdall Starts Second

After coring faulted Pliocene shale streaked with dry, silty oil sand from 3888 to 4717 ft. Barnsdall Oil Co. made a 30 minute formation test in Honor Ro. No. A-17-1 which recovered only nine stands of gassy mud; no oil or water. Believing that the well was located too close to the major fault against which an accumulation is sought, the company began immediately to remove equipment and to grade a rig site for No. A-19-1 which will be drilled 600 ft. south and 1400 ft. west of the first try.

Because much Pico oil sand, though poor in quality, was cored in the first well, it is thought now that chances of finding real production in the Modelo are better than ever. No. A-19-1 will be carried to the Miocene, original objective of No. A-17-1, unless the upper sands show unexpected improvement.

The prison farm wells are located north of Highway 99 between the Santa Clara River bridge and the Castaic beacon, the new try being in sec. 7,4-16.

Gulf Drills Deep In Oak Canyon Field

Western Gulf Oil Co., which discovered 2400 ft. Modelo production in Lechler No. 1, sec. 31,5-17, has passed the 5400 ft. mark in No. 2. As the Modelo sands appear good

LOS ANGELES BASIN WILDCATS

Area	Well	No.	Section	Depth	Status
Athens	Rankin & Williams	1	7, 3-13	9098	Idle
	Lytle, Robt. S., Operator, Anderson	1	1, 3-14		Grade
Castaic	Barnsdall Oil Co., Honor Rho A-17-1		5, 4-16	4717	Abandoned
	Barnsdall Oil Co., Honor Rho A-19-1		7, 4-16		Grading
	Collins Oil Co., Explor.	1	8, 4-17	1355	Idle
	Jasper, Fred S.	1	17, 4-17	1530	Idle
	Morse-Mangold, Inc., McDermott	1	26, 5-17	1966	Drilling
	Western Gulf Oil Co., Lechler	2	31, 5-17	5388	Drilling
	Worland Oil Co., Jenkins-Owens	1	18, 5-16	2940	Idle
	Young, Roy, W., Inc., Walker	1	11, 4-16		Location
Malibu	Sovereign Oil Corp., Malibu	1	7, 2-18	5650	Idle
Newhall	Aztec Oil Co., Sanborn	1	6, 3-16	2924	Drilling
	St. Anthony Oil Corp., La Salle	1	10, 3-16		Grading
	The Texas Co., Whitnah	1	14, 3-16	485	Drilling
Palos Verdes	Newton Development Co., Palos Verdes	1	13, 5-15	280	Drilling
	Surety Holding Co.	1	22, 5-14		Grade
Redondo	Cherokee Oil Co.	1	32, 3-14		Bldg. rig
	Pettijohn, J.E., Dominguez Estates	1	5, 4-14		Material
	Wood-Callahan Oil Corp., Dominguez Estates	1	5, 4-14		Rig
Whittier-La Habra	Sierra Pet. Co., Cole	1	2, 3-11		Grade
	Orange County				
Costa Mesa	Thompson, Milton N., Banning	1	9, 6-10	5649	Cleaning out
Kraemer	Valley Petroleum Co., Kraemer	1	25, 3-9	2755	Testing
Olive	Tide Water Assoc. Oil Co., Olive-Orange	1	19, 4-9	4501	Abandoned
	San Bernardino County				
Carbon Canyon	May, Homer, Oasis	1	31, 2-8		Rig
Chino	Prado Oil Corp., Lamp	1	32, 2-7		Rigging up

NORTHERN COUNTIES WILDCATS

County	Well	No.	Section	Depth	Status
Colusa	Pacific National Pet. Corp.	1	17, 17n-4w		Rig
Contra Costa	Lafayette Oil Co., Morris	1	28, 1n-2w	685	Drilling
Humboldt	Daly, M. B., Jr.	1	2, 1n-2e	900	Idle
Merced	Don Pedro Oil Co.	1	9, 6s-9e	1906	Idle
Mendocino	Keyt, N. F.	1	3, 12n-17w	516	Rigging rotary
Monterey	Loma Grande Oil Co., Corey	1	23, 24s-10e	3915	No report
	Priest Valley Pet. Co., Greve	1	22, 20s-12e	2885	Idle
Rio Vista	Amerada Pet. Corp., Kuhn Comm.	1	8, 3n-3e	4255	Drilling
	Amerada Pet. Corp., J. F. Wilcox	1	31, 4n-3e	4209	Shut-in
	Standard Oil Co., Oulton	1	9, 3n-3e		Grade
Sacramento	Portable Drlg. Equip & Supply Co.	1	35, 8n-4e	75	No report
San Joaquin	Standard Oil Co., Blewett	2	25, 3s-6e	4690	Drilling
San Mateo	Ra-Lite Petroleum, Inc., Bell	5	16, 7s-4w	1200	Idle
Yuba	Wright, L. G., Cox	1	18, 14n-5e	1795	Idle

for only modest yields in the Oak Canyon area the company plans to carry No. 2 down in search of more prolific horizons lower in the Miocene or in the Eocene if present at this location. No showings have been reported below the shallow sands.

Hathaway Co.'s Ram No. 1, located southwest of Lechler No. 1, is reported as pumping 60 bbls. of 22.5 gravity oil cutting 50% from 2594 ft.

Del Valle Outlook Improved by Test

The outlook for the southeast side of the Del Valle field was improved considerably by the formation test made in Lincoln No. 3 at 7435 ft. Although the packer stuck, making it impossible to recover the fluid which entered the drill pipe, gas reached the surface five minutes after the valve was opened and blew at a moderate diminishing rate until closed in two hours later. When the drill pipe was shot off 13 stands above the packer at 7359 ft. and circulation established, heavy colors appeared in the mud indicating the fluid rose above that point and was, in part at least, oil. The drill pipe and tester were fished out and the hole was being conditioned to cement a string of 7 in. casing at approximately 7230 ft. at last reports.

Although the test cannot be considered as conclusive, it now seems that the well has better than an even chance to become a commercial producer in the opinion of company officials. Pending the forthcoming production test, Vasquez No. 1 and Universal Consolidated Oil Co.'s No. 1 remain idle.

Boom Under Way At W. Dominguez

Activity on the lines of a small boom is getting under way at the extreme west end of the Dominguez field where Hiles Drilling Co. recently brought in Grant No. 1 for better than 1000 bbls. of clean 32 gravity oil a day. Walter Crawford and Ed Hiles, principals, are drilling their Crawford & Associates No. 1 near

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the 2500 ft. level and are preparing to spud Crawford-Hiles & Associates No. 1. They also have plans for other wells in the near future.

Union Oil Co. is down nearly 6000 ft. in Austin No. 9, an easterly offset to Grant No. 1 while Johnson & Richardson are starting to make hole in their Sturgeon No. 1 which is the most westerly well so far. Edgemont Oil Co. plans to drill one location north of the discovery well.

Within the old area, Shell Oil Co., Inc. completed two good wells, Reyes No. 113 and No. 115, in the 4250 ft. zone while Union Oil Co. finished Callender No. 83 in the Seventh and Eighth Callender zones at 7628 ft.

Inglewood Well Nears Deep Zone

A very interesting picture is gradually coming to light as Jefferson Oil Co.'s Smith No. 1 nears the deep sand at the north end of the Inglewood field. An electric log, run at 7180 ft. correlated 310 ft. higher than Federal Oil Co.'s discovery well at 5490 ft. but a marker at 5568 ft, checked with a point at 6620 ft. on the Federal log, a difference of 742 ft. in stratigraphic depth in less than 100 ft. of drilled depth. The top of the Miocene is placed at 5732 ft. in the Jefferson well against a revised figure of 6780 ft. in the Federal. The old Plymouth Oil Co. Pollard No. 1 correlates about 55 ft. higher than Jefferson. Only 500 ft. separates the surface locations of the Jefferson and Federal wells.

If the present differential continues, Jefferson Oil Co. should top the deep zone at approximately 6900 ft. The exact cause of the vast difference between the wells is not known but may be due to faulting or to a difference in sedimentation.

Hogan Petroleum Co. has contracted the drilling of its No. 1A to Thos. Pike who expects to get started soon. Oscar Howard and the Jergins interests are deepening Howard's No. 1 from 2486 ft. R. R. Bush Oil Co., which completed the Federal Smith No. 1, has two wells drilling while Federal Oil Co. has spudded its No. 2. The Texas Co.'s Smith No. 7 is drilling below 2350 ft.

Standard Oil Co. bottomed its deep L. A. I. No. 3-1, located on the west flank near Bush Sentous No. 1, at 10,598 ft. and plugged into the shoe of the 7 in. casing cemented at 9011 ft. The pipe was perforated from 8583 to 8700 ft. in the Sentous zone and, after blowing out while running drill pipe, flowed gas with a small quantity of oil. Through a 1 in. bean, production was estimated between one and two million cubic feet per day.

Royalty Service Corp. is preparing to drill Marlow-Burns No. 1, a virtual wildcat at the north end of the Shell Rindge lease.

Long Beach Outpost Drills Below 4500 Ft.

Playing for a fault accumulation on the north flank of Signal Hill, Royalty Service Corp. is drilling below 4500 ft. in Burgess No. 1 which is located 550 ft. east of the intersection of 32nd St. and Orange Ave. It is said the company expects the best zone at 6500 ft.

At the crest of the Atlantic Ave. hill, Panora Oil Co. redrilled the old West American No. 11 to 4402 ft. and recompleted pumping better than 100 bbls. of 25 gravity oil cutting 10.0%. Perforations are open from 3275 to 4110 ft.

At the east end of the field, Richfield Oil Corp. is drilling Connet No. 3 at 5400 ft. Dumm Bros. Petroleum Corp. plans an offset to the Shell Co.'s Alamitos lease in this area.

In the 31st St. and Elm area, Chester Yunker redrilled Barbara No. 2 to 4202 ft. and recompleted for 75 bbls. of clean oil. The perforated interval is unknown.

New Well Planned For West Richfield

Milburn & Hamilton, Operator, is making preparations to drill a Kreamer zone well west of Central Ave. and south of Alta Vista St. at the west end of Richfield, offsetting Standard Oil Co.'s Kraemer No. 2 lease.

F. O. Whitelaw is testing for production in Continental No. 1 at Atwood. The old hole was redrilled and deepened to 4855 ft. where a new type of liner was cemented. Perforations were opened by exploding cartridge-like beans which are built into the casing.

Master Petroleum Co. is preparing to test the old Berry & Todd well near the Reservoir which was drilled to 4524 ft. in 1927.

After redrilling the old Union Oil Co. Towell No. 2 to 3160 ft., Great Northern Oil Co. placed the well on the pump with production yet unestimated.

Valley Petroleum Co. is testing its Kraemer No. 1 at East Richfield after bottoming at 2755 ft. and cementing a combination string through perforations at 2100 ft.

Basin Briefs

Some excitement was caused when a Los Angeles paper gave prominent space to a story that Southern California Petroleum Corp.'s Howard Townsite No. 1,

For Cleaning Production Strings Having Slotted or Round Bored Perforations

THE CAVINS PERFORATION WASHER

1 Opens the perforations that are clogged with mud, sand, shale, etc.

2 Flushes the formation outside the pipe.

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4 Determines the condition of outside gravel-packed jobs.

● The perforation Washer consists of the Cavins Automatic Hydraulic Suction Bailer and two attachments which can be assembled in 15 minutes time.

● *(A companion tool to the Perforation Washer is the Screen Cleaner, designed for use in wire wrapped screen liners.)*

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Athens outpost, flowed 1300 bbls. of oil a day after reperforating. The fluid was actually 750 bbls. of salt water and an appreciable quantity of gas.

Royalty Service Corp. deepened its Gordon No. 2 at Rosecrans to 8450 ft. and recompleted for 325 bbls. on the gas lift.

Morton & Elder's Santa Fe No. 1 at Santa Fe Springs found very little fluid at 4400 ft., deepened to 4560 ft. without improvement and is now trying to produce from 4412 ft.

Continental Oil Co.'s latest Seal Beach well, Bixby No. 46, came in flowing 811 bbls. of clean oil from 38 ft. of formation open to 4690 ft.

De Marsh Oil Co. is pumping about 90 bbls. of 19 gravity oil from Phillips No. 1 in the West Wilmington area. Two hundred and forty feet of formation is open to bottom at 3760 ft.

R. S. Lytell to Drill Near El Rey Wildcat

The R. S. Lytle, Operator organization, which three years ago sired the Coalinga Eocene fields, is preparing to drill a new wildcat on property of J. C. Anderson north of Imperial Highway and east of Western Avenue. The location is slightly less than half a mile east of the El Rey well which last year was completed as a 45 bbl. pumper at 9000 ft. More than 400 ft. of oil zone was cored in the latter well but the sands were very tight and impermeable, holding production to a low level. The new try is based on the theory that the sand may be capable of a higher yield at a different structural location.

Mangold & Morse Resume at Castaic

After a brief shut down at 1966 ft., Mangold & Morse Oil Co. is resuming drilling its wildcat in sec. 25,5-17 north of Castaic Junction. The well is believed to be close to the top of its Modelo objective.

Cable Tool Well Tests Palos Verdes

Using a modern diesel powered long-tail cable tool rig in an 84 ft. steel derrick, Newton Development Co. is drilling a wildcat well at the edge of the high bluff overlooking the ocean near Point San Vicente which is the southwesterly tip of the Palos Verdes Hills. The well, now drilling near the 500 ft. level and carrying 15 in. casing, is a sight to sooth the sore eyes of the oldtimers who mourn the passing of this type of equipment from most of the California picture. Plans call for the drilling of two or more holes to depths between 2000 and 3000 ft.

The company, which makes its headquarters in Denver, Colo., drilled a 5285 ft. wildcat with cable tools in the Elkhorn-Carrizo area of San Luis Obispo county, abandoning early last year.

Southeast of the Newton well near the top of White's Point, Surety Holding Co. is preparing to drill another wildcat. This too is a scenic location overlooking Catalina channel.

Three to Test N. W. Torrance

Three companies are preparing to drill wells in the northwesterly section of the Torrance field in the vicinity of 190th St. and east of Flagler St. Cherokee Oil Co. is building a derrick north of 190th St. while to the south on the old Union Oil Co. Francis lease, J. E. Pettijohn has boilers installed and Wood-Callahan Oil Corp. is preparing to spud.

Three Projects Active In Newhall District

Three projects are at present active in the Newhall district, two of which are drilling. West of the state highway in sec. 6,3-16, Aztec Oil Co. is below 3000 ft. in Sanborn No. 1 while to the south near the old tunnel, The Texas Co. is drilling Whitnah No. 1 at 1000 ft. St. Anthony Oil Corp. is grading roads and location for La Salle No. 1 in sec. 10,4-16 on a sublease from Tamas Oil Co.

Tide Water Abandons Olive-Orange Wildcat

Tide Water Associated Oil Co. abandoned Olive-Orange No. 1, sec. 19,4-9, at 4501 ft. in basalt of Miocene age topped at 4365 ft.

Northern Activities Told in Brief

Lafayette Oil Co. is drilling Morris No. 1 below 700 ft. in sec. 28,1n-4w in Contra Costa county.

Pacific National Oil Co. plans to get under way soon in its Cretaceous test in sec. 17,17n-4w, Colusa county. Floods have made the derrick inaccessible for months.

A new group is reported to have taken over the old Epco well at Union near Paso Robles and is preparing to test showings logged at 5900 ft. The hole is bottomed in schist at 6157 ft.

"Tex" Harvey Oil Corp. is plugging and retesting its Gilmore Community No. 1 at Huasna after redrilling to 3800 ft.

Loma Grande Oil Co.'s Corey No. 1 in Monterey county has not been reported on recently. When last heard from the well was drilling at 3915 ft.

N. F. Keyt's Point Arena test, Mendocino county, is rigging rotary equipment to deepen from 516 ft.

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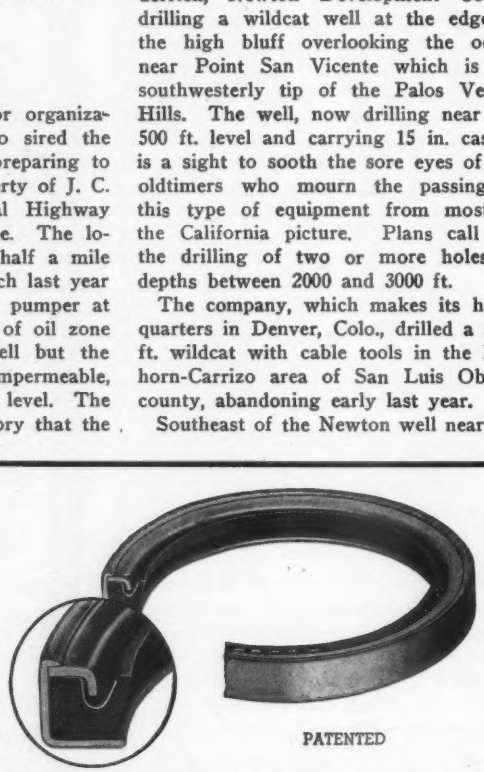

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San Joaquin Valley

Fresno County "Cat" Tests Miocene Sands

Shell Oil Co. is testing upper Miocene sands in its Raisin City wildcat, Properties Incorporated No. 8-18. Located in sec. 18,15-16 the exploration hole found the first oil sands at 4690 ft. which is also believed to be near the top of the section.

First formation test from 4697 ft. to bottom at 4754 ft. recovered 8 stands of 22 gravity oil out of a 34 stand recovery, the balance being oily mud and salt water. A fair gas blow was noted but the well showed no disposition to flow.

Deepened to 4860 ft. the well was tested in the interval below the original trials with discouraging results. Recovery in this interval reportedly was all mud and salt water.

At last report cleaning out to resume drilling, the well yet offers possibilities since it is reported higher on structure than anticipated. The net recovery of the trials is slightly more encouraging than the usual results of northern Fresno county drilling although other wells in the area have shown some evidence of oil and gas.

In the Friant area of the county D. M. Gay has built rig to drill well No. 1 on sec. 3,11-21.

Carey Deepening Old Mt. Poso Hole

Near the west line of the northwest quarter of sec. 34,26-28 J. F. Carey is deepening U. S. No. 1 at 1085 ft. in search of Vedder zone production.

Originally drilled to 823 ft. in 1938 by Master Pet. Corp. the well lies one location east of Recovery Oil Co.'s well No. 2 which is producing from 47 ft. of the Vedder sands found at 1362 ft.

A mile south near the east quarter corner of sec. 4,27-28, J. J. Tavis' attempt to find production between the Mt. Poso field proper and an isolated pool in section 3 failed when the Vedder was found gray at 1708 ft.

General Petroleum Corp. encountered the oil zone in Heisen No. 6 near the center of sec. 16,27-28 and was last reported in the Vedder at 1780 ft. The company is preparing to drill No. 5 and No. 35 on the lease. Production is expected to be similar to the substantial yield which Shell Oil Co. recently established on it's Security lease on the north half of the section.

In a small fault play in sec. 33, 27-28 at the south tip of Mt. Poso, Vanguard Oil Co. finished it's Baker No. 12 pumping 100 bbls. of 15 gravity clean oil from 1756 ft.

Hancock Increases Union Ave. Volume

Re-perforating its already substantial pumper, Robert No. 1, Hancock Oil Co. now has the well pumping 380 bbls. of 15.5 gravity clean oil.

Located near the east quarter corner of sec. 6,30-28 on the Union Avenue Plunge property at the southerly limits of Bakersfield, the well was drilled to 5593 ft. early in the year. Seven inch casing was cemented at 5350 ft. and perforated from 5282 to 5312 ft. from which interval production reached a maximum of 185 bbls. a day.

Since several good sand bodies were encountered between 4085 ft. and bottom it was considered probable that additional perforations would increase the volume and the casing was re-perforated from 5075 ft. to 5115 ft. resulting in the current healthy production.

Robert No. 2, drilled one location to the east encountered a fault and was suspended in gray sand at 5203 ft. The well may later be directed to the west to avoid the disturbance and attempt similar production.

SAN JOAQUIN VALLEY WILDCATS

Area	Well	No.	Section	Depth	Status
	Fresno County				
Friant	Gay, D. M.	1	3, 11s-21e		Rig
Raisin City	Shell Oil Co., Properties, Inc.	8-18	18, 15-18	4754	Testing
	Kern County				
Belridge—South	Sentinel Oil Co.	1	10, 28-20	1340	Drilling
	West Belridge Oil Co.	1	3, 28-20		Location
Buttonwillow	The Texas Co., S. P.	47-15	15, 28-24	10525	Drilling
Devils Den	Herzog, R. D., Collins	1	26, 25-18	361	Idle
	Herzog, R. D., Marine	29	26, 25-18	112	Drilling
	Herzog, R. D., Marine	30	26, 25-18	125	Drilling
Edison	Crude Oils, Inc., S. P.	7	31, 29-30	460	Idle
Famosa	C.C.M.O. Co., Famosa	12-1	12, 27-26		Location
Grapevine	Continental Oil Co., Tejon	A-1	28, 11-19	2838	Drilling
	Kern Line Oil Co.	1	19, 11-19	8390	Idle
Greeley—West	Superior Oil Co., KCL	13	18, 29-25		Rig
Lost Hills	Tide Water Assoc. Oil Co., Isolis	46	16, 27-21		Bldg. rig
Maricopa	Bankline Oil Co., Well	24-24	24, 11-23	4084	Drilling
McClung	Ohio Oil Co., KCL	G-1	36, 29-26	5905	Drilling
	Union Oil Co., KCL	31-3	3, 30-26	10658	Drilling
Mt. Poso	Carey, J. F., U. S.	1	34, 26-28	1085	Drilling
Richgrove	Borget, A. J., Kendall	1	16, 25-27	1700	Idle
	White River Expl. Co., Salca	2	8, 25-28	1640	Drilling
Shafter	Continental Oil Co., KCL	C-2	35, 27-24	11349	Redrilling
	Kings County				
Kettleman So. Dome	Bristol Oil Co., Smith	1	35, 24-19	8054	Plug.—1729—rig pump
Pyramid Hills	Pyramid Prod. Co., Spreckles	2	16, 24-18		Rigging up
	Tide Water Assoc. Oil Co., West Slope	76	20, 24-18	2367	Drilling
Reef Ridge	Easterbrooks, S. F.	1	11, 23-26	200	Drilling
	Tulare County				
Terra Bella	Arnold, V. F., T.B.I.D.	1	5, 23-28	275	Idle

Due to the placing of the fault future development will probably be carried on west of the discovery well.

Herzog Digging Two in Devils Den

Raymond D. Herzog is drilling two shallow holes in search of the low gravity lube oil sands found in the Devils Den area. Located in sec. 26,25-18 the two wells, Marine No.'s 29 & 30, are each slightly below 100 ft. The operator's Collins No. 1 in the same section is long idle at 361 ft.

Ohio Oil Co. Tests Shallow McClung Zone

Tests of the first showings in Ohio Oil Co.'s McClung area try, KCL No. G-1, proved disappointing when the well flowed salt water with a trace of gas from 13 ft. of oil stained sand cored from 5177 to 5193 ft. The test was made from bottom at 5197 ft. with the packer set at 5165 ft.

Located in sec. 36,29-26, northeast of a much drilled trend drawn southeasterly through the Rio Bravo and Greeley fields, the well was last reported at 6084 ft. in gray sand.

On the previously delineated trend in sec. 3,30-26 Union Oil Co.'s Vedder try, KCL No. 31-3, is drilling in shale at 10,658 ft. with the objective zone expected near 13,000 ft.

Name Changed on Belridge Effort

Sentinel Oil Co. is repairing equipment to resume drilling on the 1340 ft. hole formerly known as Santa Mora Trust No. 1 in sec. 10,28-20 of the South Belridge area.

North of there in sec. 3,28-20 West Belridge Oil Co. is yet awaiting results of the try before starting its operations.

Buttonwillow Try Below 10,500 Ft.

The Texas Co.'s attempt to find Buttonwillow area deep production which was suggested by showings in two earlier deep tests is nearing the critical horizon.

The well, S. P. No. 47-15 in sec. 15, 29-24, was last reported at 10,525 ft. in hard shale and streaks of sand. First encouragement was recorded when ditch shows were noted at 10,480 ft.

Deepest of the predecessors was California Exploration Co.'s Salisbury No. 1 which bottomed at 12,989 ft. in sec. 7,29-24.

Richgrove Well Hits Hard Rock

White River Exploration Co.'s Salca No. 2 in sec. 8,25-28 at the north edge of the Richgrove area is reported at 1640 ft. in hard rock unofficially reported as granite. Previous drilling in the area has placed the basement at relatively shallow depth.

Earlier in the year the company drilled Salca No. 1 on sec. 7,25-28 which was abandoned in hard coarse sand at 1610 ft.

Pyramid Hills Try Cores Gray Sand

Tide Water Associated Oil Co.'s West Slope No. 76 at Pyramid Hills appears to have reached the Eocene according to late reports.

Located in sec. 20,24-18 the well is bottomed in gray sand with a slight odor at 2367 ft. Cores at 2196 ft. were in gray brown siltstone.

This well is the fourth effort made in the area since Tide Water's West Slope No. 1 pumped 40 bbls. daily of 16 plus gravity oil from 950 ft.

Located southwest of the north quarter corner of sec. 20,24-18, the original well was drilled as a core hole to 2087 ft. after

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Unique spiral grapples on the BOWEN RELEASING OVERSHOT contact the fish over an exceptionally wide area for a **positive** grip. Smaller OD construction than ordinarily possible readily adapts this tool to "tight hole" fishing conditions. It catches and packs off tool joints, collars or pipe, as required, **without changing grapples or making any adjustments whatever.**

The Bowen Overshot sets **and releases** with right hand rotation only, eliminating risk of backing off. Milling member trims ragged edges of fish to insure full entrance into tool . . . pack-off features permit circulation. Grip cinches tighter as pull increases, yet a downward bump and slight rotation effect instant release.

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which it was plugged and completed from lower Miocene sands. A feat which to date has not been duplicated.

In section 16,24-18, Pyramid Prod. Co. is rigging up to drill Spreckles No. 2 in a similar search.

Continental Waits Shafter Area Answer

Continental Oil Co.'s KCL No. C-2, latest attempt at Vedder zone production in the Shafter area, is redrilling at 10,236 ft. after once getting to 11,349 ft.

Located near the north quarter of sec. 35,27-27, the well seeks production suggested by showings of several 13,000 ft. holes drilled along a trend which may be roughly described as following a line drawn from the axis of the Wasco field to that of the Rio Bravo field.

Superior Oil Plans West Greeley Test

In the southeast corner of sec. 18,29-25, six miles west of Greeley production, Superior Oil Co. has built a rig for KCL No. 13 to examine another of the interesting geophysical pictures worked out over the past few years.

Lying in the heart of an area long worked over by many types of instruments, the location is reported to be over a promising looking closure in Stevens zone sands.

Situated near fields productive in both the Stevens and Vedder zones it is probable that failure to find production in the shallower sands will call for a continuation of drilling to the Vedder zone.

Bankline Continues Maricopa Flat Try

Last reported in gray sandy shale at 4084 ft. Bankline Oil Co.'s test of the Maricopa flats, No. 24-24 on sec. 24,11-23, is drilling ahead with no showings reported to date. The drilling is under contract to Hall-Baker Co. which is employing its modern portable rig on the job.

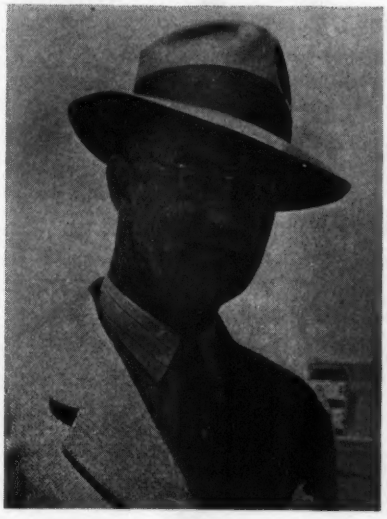
Edison Wells Near Productive Zone

Two wells are nearing the potential pay in the small pool of production southwest of the Edison field. Kenneth Oil Producing Co.'s Bea-Eddye No. 2 in sec. 21,30-29 is reported in oil sand and shale at 3675 ft. while Wood-Callahan Oil Co.'s Magoffin No. 2 is drilling at 3640 ft.

Engineering, Technology, latest news—twice a month in California Oil World.

Ches Braly Rejoins Petroleum Equipment Co.

Petroleum Equipment Co. announces that Ches Braly has rejoined that organization following the sale of his interest in the H and B Sales Co. to Roy Hitchcock.



Ches Braly

Mr. Braly entered the petroleum equipment supply business in 1920 when he joined Republic Supply Co., in Taft. He left Republic after five years to become associated with Petroleum Equipment Co. In 1932 he and Roy Hitchcock formed the H and B Sales Co.

Handling general sales work Mr. Braly will have his headquarters at the Los Angeles offices of Petroleum Equipment Co., 2800 South Alameda St.

Standard Oil Co. Elections Announced

The regular annual meeting of the stockholders of the Standard Oil Company of California was held May 1 and the following board of directors was elected: H. D. Collier, R. K. Davies, A. S. Russell, J. H. Tuttle, R. C. Stoner, P. H. Patchin, J. L. Hanna, J. H. Macgaregill, and F. S. Bryant.

The board in turn elected the following officers: H. D. Collier, president; J. H. Tuttle, vice-president; R. K. Davies, vice-president; R. C. Stoner, vice-president; J. L. Hanna, vice-president; A. S. Russell, vice-president; B. W. Letcher, secretary; G. J. O'Brien, treasurer; H. C. Judd, assistant treasurer; G. M. Foster, assistant secretary; A. K. Stevenson, assistant secretary.

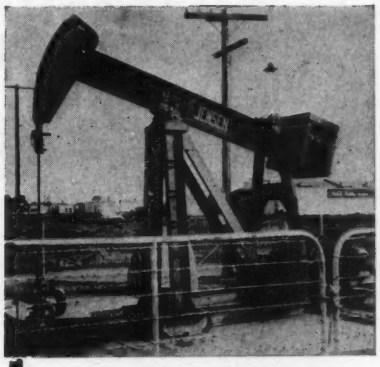
The stockholders approved the retirement of the 98,947 shares of the capital stock of the company which is held by subsidiaries and the reduction of the company's capital by $2,473,675.00 as set forth in the notice calling the meeting of the stockholders. This reduces the outstanding shares to 13,003,953.

(Continued from Page 7)

the operator drilling the well.

Five thousand eight hundred and ninety-eight acres are in the proposed participating area.

Recycling of gas to conserve the bottom hole pressure and increase the petroleum recovery is provided for.



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Wells Like Bad Kids!

Wells can be like a gang of bad boys—always in trouble. There is good reason for that haggard look worn by so many pumpers. But Father Flanagan never had better luck with boys than we've had with wells. Pumping equipment has been our sole interest for 22 years, and any producer cashes in on that experience when he buys a JENSEN JACK. For information about how to make any well go along smoothly and profitably, get in touch with . . .

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OF SLUDGE TROUBLE AND RING-STICKING!

This overhaul-saving performance convinced Mr. Arthur Kern, Vice-President of the Brown Avenue Transportation Company, Toledo—

"That RPM DELO is superior in all characteristics to any other oil tested.

"For the past two years we have been using RPM DELO in our fleet of 25 General Motors Diesel engines. Our operation in Ohio, Indiana, Illinois and Michigan represents over 2,000,000 miles per year of severe travel.

"Reliable performance is something we *must* have and due to the freedom from sludge and freedom from ring-sticking we enjoy through the use of RPM DELO, we are able to maintain our heavy schedules."

Besides eliminating ring-sticking and sludge trouble, RPM DELO also stops filter clogging, prevents bearing corrosion. And it reduces engine wear remarkably because of its unique ability to *stay put* and lubricate superheated surfaces which other oils tend to leave dry.

RPM DELO has cut overhauls down as much as one-half; cut engine repair costs as much as 58%. See what it can do for you, now!

And—

get top power—top engine protection with

STANDARD DIESEL FUEL

No matter how long or hard you work your engine, Standard Diesel Fuel delivers smooth, uniform FULL POWER hour after hour. And it's the safest power you can buy. Completely distilled—100% clean—Standard Diesel Fuel protects fuel pumps and injectors perfectly. It's the buy for your Diesels!

RPM DELO

REG. TRADE-MARK

DIESEL ENGINE LUBRICATING OIL

STANDARD OIL COMPANY OF CALIFORNIA

Coastal District

Rincon Deep Test Cores Good Oil Sand

The outlook for new deep production in the Rincon field continues to improve with Chanslor-Canfield Midway Oil Co.'s Hobson No. C-9 still coring in an oil zone at 8600 ft. The horizon is continuous from the shoe of the 8⅝ in. casing which is cemented at 7539 ft. Formation at bottom is described as shale with streaks of fair to good oil sand and with more than 1000 ft. now open a completion is virtually assured. The well is located near the S. P. right of way on the south flank of the field.

Capitan Completions Make Big Potentials

With astounding potentials of 853 bbls. and 1115 bbls., Shell Oil Co. completed its first two of five projected new wells in the shallow Capitan field west of Elwood on the Santa Barbara coast. First of the pair, Covarrubias No. 1-33, was finished in the Vaqueros sand with a 5½ in. combination string landed on bottom at 1300 ft. and cemented through perforations at 1186 ft. in an elapsed time of seven days. This included the cementing of 8⅝ in. surface casing at 375 ft., the running of the rods and tubing and the installation of the pumping unit.

The second completion, No. 1-31, was spudded the next day and, following the same casing program, was finished at 1350 ft. six days later. A new, highly efficient portable drilling rig makes these drilling records possible.

Both wells are clean, cutting less than 1.0%, and the gravity of their product is 22° API.

Petrol to Drill New Gato Project

After cleaning out and reconditioning Tognazzini No. 3-15, The Petrol Corp. is grading for a new well at Gato Ridge. Located approximately 250 ft. south and 330 ft. west of the northeast property corner in sec. 4,8-32, the well will be known as Magenheimer No. 661.

Santa Maria Valley Becoming More Active

Spurred by improved market conditions, operators are again becoming interested in Santa Maria Valley development and two companies which have been inactive there for more than two years are already drilling new wells.

First to get started was Geo. F. Getty, Inc. with Vicente No. 6 which is now below 2500 ft. This one will be followed by another on the same property and one each on the Pacific Western Oil Corp. Hobbs and Samarin leases.

With an outfit moved from Huntington Beach, Signal Oil & Gas Co. is drilling Yelkin No. 7 which will be followed by Newlove No. 4. Signal plans to drill at least half a dozen wells with this string of tools and has ordered a portable servicing unit similar to the one which has proved so successful on its Signal-Bolsa lease.

Joseph P. Anderson, Los Angeles attorney, has started preliminary work on Fairfield No. 1 at the north end of the Paderewski Subdivision and a number of other independent operators have indicated they will get under way soon.

Union Oil Co. drilled Mallory No. 4 to 5285 ft. and plugged to 5200 ft. where it was finished pumping 125 bbls. a day net oil and 110 bbls. of water. The 5½ in. combination string was cemented through perforations at 4845 ft. The company is completing McCoy-Cooney No. 3 while No. 4 has foundations in and Acquistapace No. 2 is drilling. Derrick is up for Stinson No. 3.

Avenue Development Continues Steady

Development continues at a steady pace in the Ventura Avenue field which, in the period of its importance since 1925, has produced more than 225,000,000 bbls. of better than 30 gravity crude. Scattered throughout its nearly six mile length, eleven wells are drilling and preparations are being made for eight more. Four hundred thirty wells whose potentials total more than 150,000 bbls. produce a daily average of 32,000 bbls., a yield topped only by Wilmington, Long Beach and Kettleman North Dome.

In the Central Avenue section, Alliance Petroleum Corp.'s Hisey No. 4 is drilling at 6000 ft. while its north side outpost, Hartmann No. 3, is flowing 575 bbls. of 31.5 gravity clean oil through a 20/64 in. bean from 7641 ft. British-American Oil Producing Co.'s Hartmann No. 12 is below 4000 ft. while, on the same property, Bolsa Chica Oil Corp. is preparing to drill its No. 7. General Petroleum Corp. is rigging up to spud Barnard No. 20.

Shell Oil Co., Inc. is drilling three on the Taylor lease in the west portion and has done preliminary work for an equal number.

COASTAL COUNTIES WILDCATS

Area	Well	No.	Section	Depth	Status
	Santa Barbara County				
Elwood	The Texas Co., Bishop	A-3	13, 4-29		Rigging up
Goleta	Del Mar Oil Co., Rowe	1	11, 4-28	130	Idle
	San Luis Obispo County				
Huasna	Tex Harvey Oil Corp., Gilmore Comm.	1	11, 32-14	4518	Testing
	Tex Harvey Oil Corp., Gilmore Comm.	2	11, 32-14	2200	Idle
Paso Robles	Epco, Inc., Epco	1	27, 26-13	6157	Cleaning out
	Ventura County				
Bardsdale	Hopland Oil Co.	1	1, 3-19	1600	Drilling
	Fairfield F. E., Fairfield-Filmore	1	12, 3-20	2390	Drilling
	Palma Oil Co.	1	8, 3-19		Rig
Ojai	Oil Prod. Maintenance, Inc., Byhara	1	12, 4-22	300	Drilling
Piru	Nelson, D. V., P.F.C.—C.H.	1	19, 4-18	1690	Idle
	Glen Ogles Oil Co., Janes	1	16, 5-18	2863	Drilling
	Havlin & Pottenger, Alice	1	33, 4-8	1715	Idle
	Oilexco, Inc., Newhall-Land	2	2, 3-18	570	Idle
	Oilexco, Inc., Stevens	1	34, 4-18	373	Idle
Santa Susana	Norell, Gordon, Dixie	1	15, 2-17		Grade
Sespe	Chob Oil Co., Phillips	1	24, 4-20	40	Idle
	Inter Counties Fuel Co.	1A	22, 4-19	541	No report
	Maynard, Vaughn, Maynard	1	18, 4-19		Location
	McCaslin, W. E., Burson	1	19, 4-19	2050	Idle
	Signal Petroleum Co., Hadley	7	13, 4-19	3024	Drilling
South Mountain	Comstock Pet. Co.	1	17, 3-29	1800	Idle
	South Mountain Oil Co.	1	10, 3-20	2771	Idle
Timber Canyon	Crude Oils, Inc., West	1	10, 4-20	165	Drilling
	Fletcher, A. B., Timber Canyon	3	18, 4-20	1360	Idle
	Johnson, Chas. P., Jr.	1	24, 4-21	110	Idle

Lloyd Corp., which discovered new production on the northeast flank two years ago, is completing No. 7 and drilling No. 8 in that area. Tide Water Associated Oil Co. finished two wells on its Hartmann lease and is drilling five others on Lloyd, McGonigle and V. L. & W. Co. properties.

Austin W. Clark Now National Supply V. P.

The National Supply Co. has announced the election of Austin W. Clark as vice president, effective as of April 22, 1941.

Austin Clark

Previous to joining the National Supply Co. in August, 1940, as assistant vice president, Mr. Clark, who was born in Anaconda, Montana, and attended the University of California, had been associated for four years with Sears, Roebuck & Co., Chicago, as assistant comptroller. Prior to that time, he was for fourteen years with the Hearst Publications in New York City, as comptroller and treasurer, and was also for four years with the Cerro de Pasco Copper Corp. in Peru, South America.

Ventura Wildcat Activity Reported

When a production test at 1966 ft. resulted in very little fluid recovery, F. E. Fairfield Filmore No. 1 deepened through the 8⅝ in. liner to 2400 ft. where a delay was occasioned by collapsed casing. The well is in the old Bardsdale field in sec. 12,3-20.

Hopland Oil Co.'s Wiley Canyon test, located in sec 1,3-19, recently passed the 1600 ft. mark and has found evidences of oil in the Sespe.

Difficulty was encountered by Glen Ogles Oil Co. in getting casing into the 2863 ft. former Richfield Oil Corp. Janes No. 1 north of Piru. The pipe parted while running, making it necessary to sidetrack a 1200 ft. section which dropped to bottom.

In the upper Ojai area, Oil Production Maintenance, Inc. is below 300 ft. in its projected 1000 ft. test in sec. 12,4-22. If production is not found in the upper sands, however, the company plans to test as deep as 2000 ft.

Signal Petroleum Co.'s Hopper Canyon well, Hadley No. 7, was last reported at 3034 ft. in shale with streaks of sand showing oil. The well should now be near its objective, the Modelo horizons which have caused the recent flurry in the Castaic region.

San Miguelito Well Flows High Initial

Flowing initially 2325 bbls. a day, Continental Oil Co. brought in its No. 22 on the Grubb property at San Miguelito. The hole was finished at 7008 ft. and completed with a 4¾ in. liner including 966 ft. perforated landed on bottom. The oil, which was clean and tested 32 gravity, was accompanied by 2,300,000 cu. ft. of gas. Preparations are being made to drill Hobson No. 5 immediately.

In the Padre Canyon section, General Petroleum Corp. is drilling Padre No. 5 near the 4000 ft. level.

Gasoline Tax Again Passes 5 Million Mark

For the third time in the history of California's gasoline tax, the monthly income from this source exceeded the $5,000,000 mark during March, the State Board of Equalization reports.

Richard E. Collins, chairman of the Board, announced that the taxable gallonage for the month amounted to 166,922,679. on which the assessment amounted to $5,007,680.37.

This tax represented an increase of $391,740.33, or 8.49 per cent over the same month of the previous year. At the same time it was substantially higher than the $4,314,816.38 collected for the month of February, 1941.

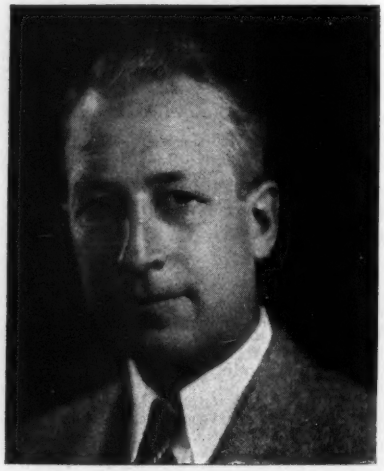
Board records show that the income from the gasoline tax for the first quarter of 1941 exceeded the same period of the previous year by more than $1,000,000.

The figures for the first three-month period were as follows:

1940	$12,710,978.67
1941	13,858,547.67

Ralph Hoffman Elected Link-Belt Vice-President

Alfred Kauffmann, Link-Belt Co. president, announces that with a view to making the general office organization a more effective aid to plant sales managers, the board of directors has elected Ralph



Ralph Hoffman

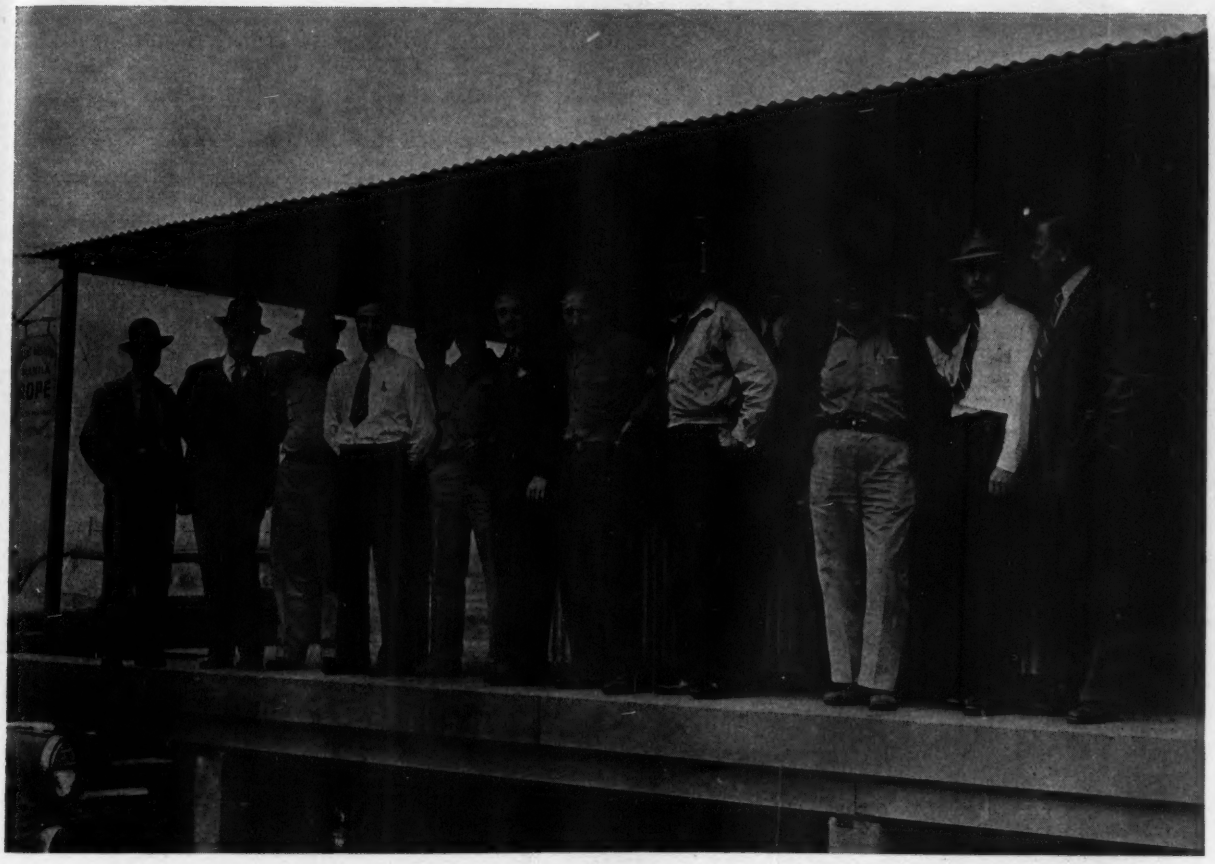
M. Hoffman a vice-president, delegating to him the general direction and supervision of sales for the company.

"This," says Mr. Kauffmann, "should bring about not only better coordination and cooperation between our various sales departments, but also an improvement of methods in them; the appointment in no way changes plant organization responsibility, which will continue to be vested in the plant vice-president or general manager."

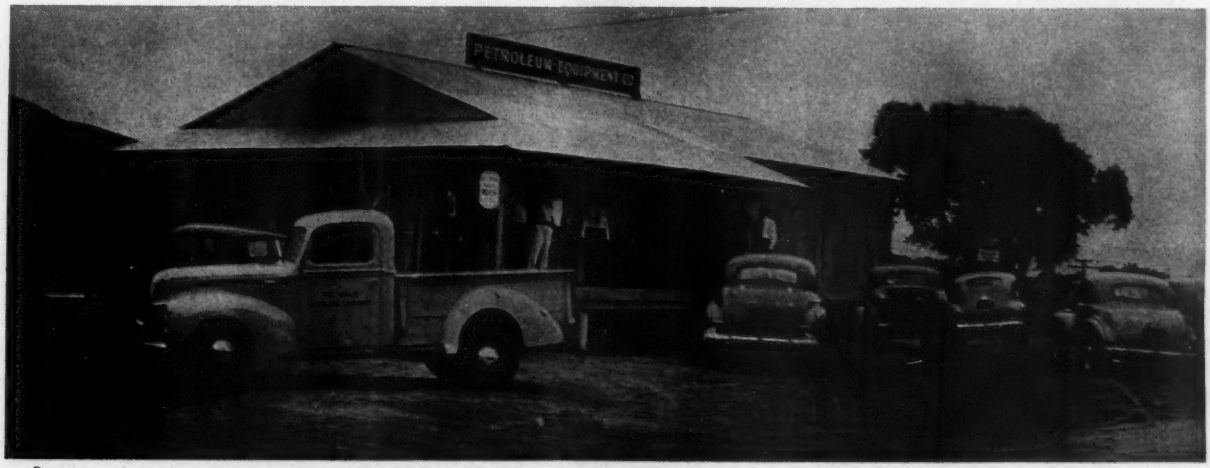
Mr. Hoffman, a mechanical engineer, University of Minnesota, 1911, has been assistant to the president since January, 1940, with headquarters at 307 N. Michigan Ave., Chicago, where he will continue to have his office.

He came to the Link-Belt organization in 1923 as manager of Link-Belt Meese & Gottfried Co.'s Seattle branch. He served in this capacity until 1931, the name of the Pacific Coast subsidiary meanwhile becoming Link-Belt Co. Pacific Division; and from 1931 to 1939 served as vice-president and sales manager of this subsidiary, with headquarters at San Francisco.

Mr. Hoffman's previous experience consisted of: 1911-12, apprentice machinist, Smith Cannery Machines Co., Seattle; 1912, draftsman, Superior Portland Cement Co., Concrete, Wash.; 1913-15, branch manager, Meese & Gottfried Co., Vancouver, B. C.; 1916, sales engineer, Meese & Gottfried Co., Seattle; 1917-21, vice-president, Hesse-Martin Iron Works, Portland, Ore.; 1921-23, manager Seattle branch, Meese & Gottfried Co.



Petroleum Equipment Co., one of the larger suppliers of the California Petroleum industry, recently opened a store near The Beacon (Castaic) to serve the Del Valle-Newhall area. Present at the open house were, left to right, Paul Ribb, representative of Well Equipment Mfg. Co.; W. C. Brooks, assistant to management, Petroleum Equipment Co.; H. "Tubby" Sievers, driller for Oil Tool Corp.; C. M. "Chuck" Corbit, field sales manager, Petroleum Equipment Co.; unidentified; E. N. "Whitey" Mitchell, Kern Drilling Corp.; Clem Dumett, field salesman, Petroleum Equipment Co.; Stan Hozer, Castaic storekeeper, Petroleum Equipment Co.; Roger Brown, San Joaquin Valley field sales, Petroleum Equipment Co.; S. F. Remmel, Byron Jackson Co.; T. W. Cook, superintendent, Mangold & Morse Oil Co.; John Dalton, attorney; R. H. "Bob" Funk, Byron Jackson Co. and F. E. "Buster" Weland.



With more encouraging reports from Del Valle, Petroleum Equipment Co.'s new store near the field discovered by R. E. Havenstrite, Operator, has a bright outlook.

Tide Water Readys Lost Hills Project

Off the southerly tip of the Lost Hills field in sec. 16,27-21 Tide Water Associated Oil Co. is building rig for Islais No. 1. Located near a handful of earlier shallow attempts to extend the field, the try is expected to serve a more useful purpose than the others due to increased facilities for analyzing cores and zones.

Latest and deepest of the predecessors was Tide Water's own 5324 ft. hole in the southeast corner of section 17.

Valley Producers Urge Crude Raise

The San Joaquin Valley Oil Producers Association has issued the following statement:

"While the recent adjustment in crude oil prices, effective April 24, was a trend in the right direction, nevertheless the producers feel that the adjustment should have been at least enough to have restored the prices to those prevailing fifteen months ago when they were so drastically cut without seemingly justifiable economic reasons.

"The price of crude oil and its products still lags considerably behind the price level of other commodities, and twenty-three percent below the price index of the materials the oil industry has to purchase in order to produce and market its products.

"It is not necessary to repeat the statistics of the oil industry in California which show a large and steady reduction of stocks in the last fifteen months due to increased demands. Prices received for crude oil and its products have been running counter to the fundamental law of supply and demand as they should have gone up last year instead of down.

"It is the opinion of everyone who is solely in the oil producing business in California that the restoration of prices to their former levels or to a level commensurate with that of all other commodities is justified immediately."

Warde Evans and Friend at the Picnic.

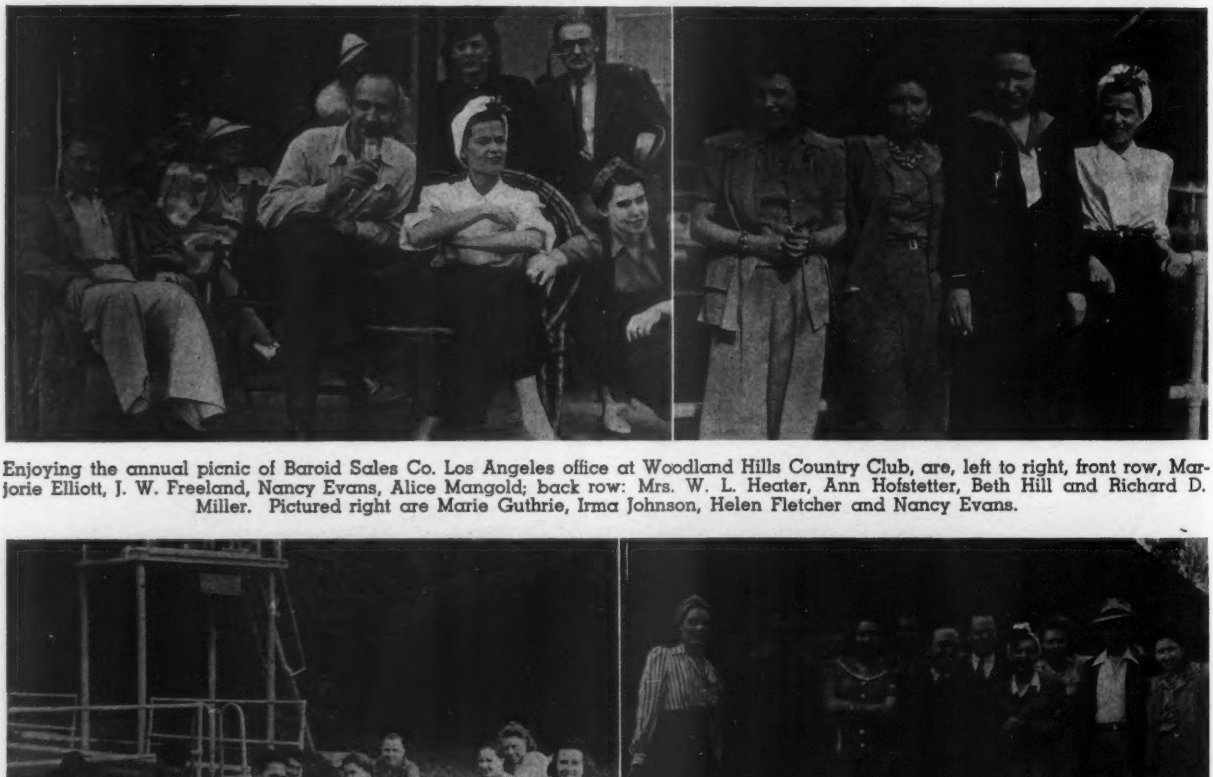
Bristol to Pump South Dome Well

Bristol Oil Corp. which has tested several zones in the old 8054 ft. Ohio Oil Co. Smith No. 1 near the southwest corner of sec. 35,24-19 is preparing to pump from a gun perforated interval above plugged bottom at 1720 ft.

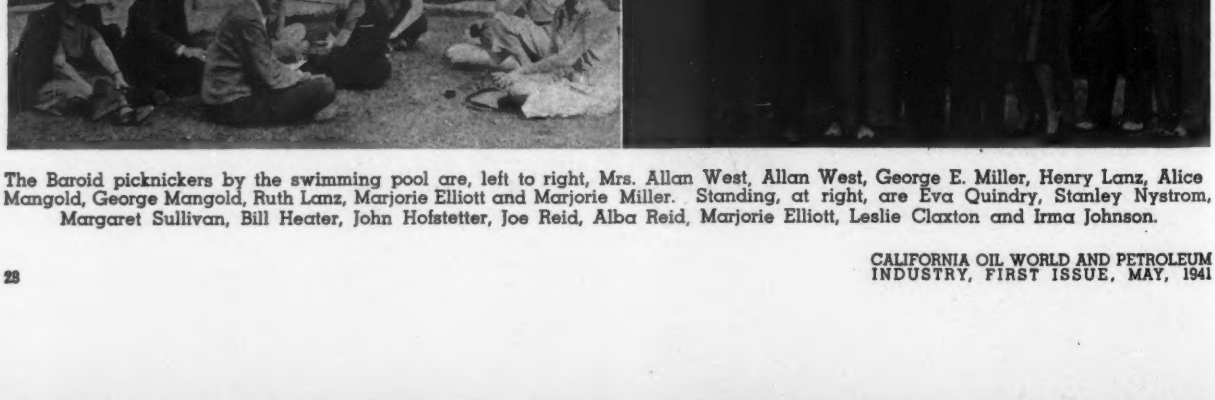
Drilled in 1930 prior to modern technique, the current operators thought it possible that sands might have been passed up in this well and have tested uphole from 5650 ft. At the present depth the hole was swabbed dry and oil began entering at a 20 bbl. per day rate.

The Texas Co. Spuds Third Elwood Wildcat

With the drilling contracted to E. A. Bender, The Texas Co. spudded its latest Elwood area wildcat, Bishop No. A-3.



Enjoying the annual picnic of Baroid Sales Co. Los Angeles office at Woodland Hills Country Club, are, left to right, front row, Marjorie Elliott, J. W. Freeland, Nancy Evans, Alice Mangold; back row: Mrs. W. L. Heater, Ann Hofstetter, Beth Hill and Richard D. Miller. Pictured right are Marie Guthrie, Irma Johnson, Helen Fletcher and Nancy Evans.



The Baroid picknickers by the swimming pool are, left to right, Mrs. Allan West, Allan West, George E. Miller, Henry Lanz, Alice Mangold, George Mangold, Ruth Lanz, Marjorie Elliott and Marjorie Miller. Standing, at right, are Eva Quindry, Stanley Nystrom, Margaret Sullivan, Bill Heater, John Hofstetter, Joe Reid, Alba Reid, Marjorie Elliott, Leslie Claxton and Irma Johnson.

Whipstocks and Mills For Sidetracking Casing

By R. B. Kinzbach
Kinzbach Tool Co.

Sidetracking a well from a point within a casing string demands a detailed analysis of well conditions and equipment characteristics if satisfactory successful operations are to be assured. Selection of tools for a particular job should then be based on the conclusions of this analysis. Aside from these mechanical considerations, the cost of the operation becomes the next important consideration.

With the advent of improved whipstocks and milling tools the operation of sidetracking has come into its own, as a normal well problem, and has ceased to be an emergency measure. Its acceptance, and practice, by the industry has enormously broadened the scope of workover operations. A discussion of the accompanying illustrations will serve to emphasize the development of these tools, and the problems they minimize or eliminate.

The whipstock is run into the hole on the drill pipe, as shown in Figure 1, to the desired depth, then slowly raised until the trigger engages the pipe end in a coupling. This releases the slip, which is then set firmly by the application of a part of the weight of the drill pipe. The applied weight also shears the stud, with which the whipstock is attached to the drill pipe. Consequently the face of the whipstock is so located that the window will fall within a single joint of casing, eliminating the danger of cutting through a coupling and severing the casing string. After the stud is sheared, the setting tool is lowered to wedge the top of the whipstock against the wall of the casing where it cannot interfere with passage of tools down the face. The hinge, permitting this movement, is tightly bolted, and will not allow further movement of the concave section, except as forced by wedging tools. The whipstock is anchored against either downward or rotative movement, but can be removed from the hole after having been set. This possibility reduces the hazard of collapsed casing, premature setting, or other difficulties that might warrant its removal for resetting. Occasionally an operator finds it desirable to go back into the original hole, even after the completion of a redrilling job, and the whipstock is removed to clear the casing for this procedure.

After setting the whipstock the setting tool is removed from the hole, and a milling tool run in on the drill pipe. Figure 2 shows a milling tool at the top of the whipstock, in position to start cutting the window. Figure 3 shows an enlarged view of the same milling tool, which embodies novel features of design and construction that make it a real improvement in this type equipment. The tool steel blade inserts are machined, ground, and hardened before being inserted into the body. This construction enables the manufacturer to use materials and treatment suited to a particular purpose, without compromise. The clearance and rake angles on these inserts control their cutting action, and can be accurately controlled in this construction. Ample clearance is provided for passage of drilling fluid and cuttings about the mill body. The blades are inserted at an angle with the axis of the tool, retarding any tendency to take too heavy a cut, or to "corkscrew" or "roll off" the face of the whipstock before sufficient length of window has been cut.

Fig. 1

Fig. 2

The greatest advantage in the use of

Fig. 3

this type of equipment for sidetracking lies in the fact that the casing string remains intact, and cannot be completely severed. On any such operation where the string is severed, the friction and slap of the drill pipe against the unsupported casing end might unscrew, or break, the nipple remaining in the joint immediately above the window. This might cause an expensive fishing job, and loss of the window and all hole made below it.

In redrilling operations, casing strings are often sidetracked that are poorly cemented, and, if completely severed, the lower section may either shift its position or settle lower in the hole. This movement might interfere with all operations from this point, or might cause the bit to be guided directly into the old hole and follow alongside the casing.

Finally, the segment of casing remaining, after milling a window with tools of the type illustrated, acts to support the whipstock, and to prevent its working loose from impact with the drilling tools during subsequent operations.

The average costs of cutting a window in casing, regardless of size, weight, or grade, are surprisingly low. With proper consideration of factors that might affect the performance of the tools illustrated, very few difficulties are encountered.

Sperry-Sun Expands In Mid-Continent Area

In expanding its services in the Mid-Continent territory, Sperry-Sun Well Surveying Co., 1608 Walnut St., Philadelphia, Penn., the following new offices have been announced by G. L. Kothny, vice president:

Fort Worth, Texas, 2645 Lubbock Ave., telephone 4-8475, with J. P. Klep as manager.

Oklahoma City, Okla., 3020 N. W. 19th St., telephone 4-7783, mail address Box 5002, with W. F. Krueger, representative.

Lubbock, Texas, 3207 20th St., telephone 3765-J, mail address Box 1537, with L. H. Creasy, representative.

A leading automotive manufacturer is experimenting with plastic cars. Plastics lack tensile strength of steel, but are better able to withstand knocks and rough usage, researchers say.

Drilling and Fishing Safety Joint Announced

A feature of this new safety joint is that the bore is large enough to allow wire line coring equipment, surveying instruments and other tools to pass freely through it into the drill collar. The safety joint is designed for use in both drilling and fishing and is manufactured by the Hydril Co., 714 West Olympic Blvd., Los Angeles Calif.

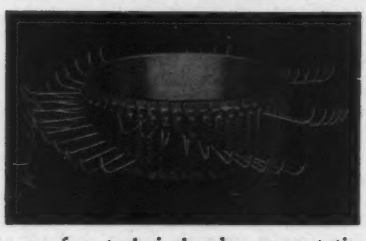
The large diameter bore of the safety joint is obtained by the use of a positive-engagement clutch which employs a series of hardened, precision ground taper pins as the means of locking the mating halves of the joint against relative rotation.

When the tool is made the amount of torque required to disconnect the two halves is permanently established by screwing them together to a predetermined tightness, and is considerably less than that required to unscrew a tool joint of corresponding size. The taper pin holes are then drilled and line reamed on the mating diameters of the box pin members. The taper pins float free in the clutch member, so that they can seek accurate individual alignment, and are held in place in their respective taper holes by pressure of a heavy spring. The correct fit thus obtained prevents back-lash and insures rigidity of the joint.

If the tools become stuck, release is accomplished by means of a dart pumped down the drill pipe, or by dropping a dead weight if circulation is shut off. Pump pressure on the dart, or the dead weight, depresses the clutch, drawing the taper pins out of engagement. The two halves of the joint can then be unscrewed and the upper portion of the string with the upper half of the safety joint removed from the hole. The dart or weight is retained in the upper half of the safety joint and is removed with the drill string.

B and W, Inc. Publish New Bulletin

An interesting new 8-page bulletin describing the usage of Wall Cleaning Guides in improving the primary cement job has just been released by B and W, Inc. The opening pages are in the



form of a technical sales presentation, with large graphic sketches of well sections. These sketches show the troubles arising from failure to remove the residual mud cake from the wall of the hole, and failure to keep the casing properly cemented in the hole during the cementing operation. The resultant "channelling" of the cement slurry that leads to cementing failure is illustrated.

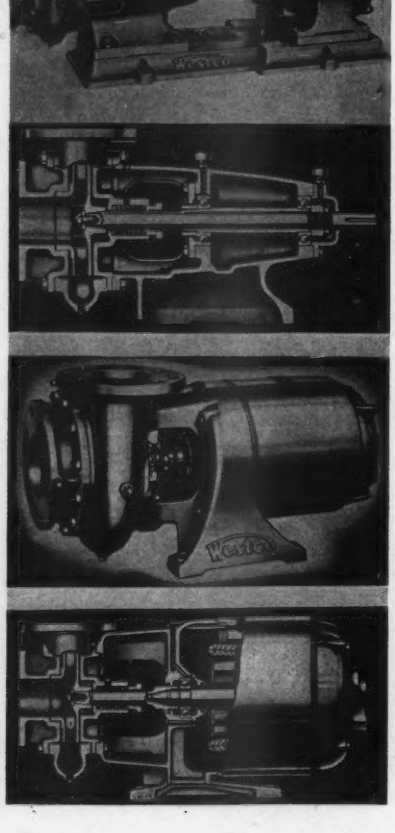
B and W Wall Cleaning Guides are said to assure removal of mud filter cake, and by continuous centering of the Casing to insure uniform cement distribution and to prevent fluid migration behind the casing.

The balance of the B and W Bulletin describes the construction, placement and the many field usages of the Guides, all tending to prove that their use increases the number of successful completions on the original cement job.

Copies of Bulletin 102 may be obtained by addressing B and W, Inc., at any one of their three offices: 3545 Cedar Avenue, Long Beach, Calif.; 302 M & M Building, Houston, Texas; 1703 North Port Avenue, Corpus Christi, Texas.

Westco Centrifugal Pumps Side Suction Single Stage

Streamlined throughout, the new line of Westco Side Suction Centrifugal Pumps includes flexible coupling drive models in sizes 1¼ in. to 6 in. inclusive and Uni-Bilt models in sizes 1¼ in. to 4 in. inclusive. These compact, ruggedly built units incorporate the latest features in centrifugal pump design . . . are pre-



cision-made to withstand the strain of continuous service . . . and rigidly inspected to eliminate unnecessary installation and maintenance expense.

General construction: Heavy close-grained cast iron, torpedo type frame absorbs all operating strain, guards against misalignment Suction cover rib-reinforced to withstand distortion. Two oversize ball bearings (oh Flexible Coupling Drive Models) are completely enclosed, have flush-type lubrication. Super-finished, high grade steel shaft insures longer packing life, can be easily and quickly removed. Cover with extra deep packing box, separate from volute body. All parts accurately built, correctly machined to rigid specifications, insuring positive uniformity throughout . . . easy and quick replacement in the field.

Impeller. Enclosed or semi-open impellers are hydraulically and mechanically balanced to insure quiet operation. Engineered in conformance with accepted hydraulic developments. Enclosed style recommended for handling clear liquids, has triple-faced wearing surface, can be adjusted to compensate for wear. Semi-open, non-clog impellers should be used for liquids containing foreign material in suspension. Tapered fit insures positive centering on shaft. Special metal pumps for handling corrosive or abrasive liquids can be furnished to meet specific pumping requirements.

Volute shell. Scientific design provides a smooth, streamlined channel flow that minimizes turbulence within the pump, reduces erosion, provides extra years of dependable service. Discharge can be installed in four positions without reducing the accessibility of the stuffing box.

Complete descriptive literature now available. For further information, write or wire Micro-Westco, Inc., Bettendorf, Iowa.

Brown Instrument Co. Issues New Catalog

The Brown Instrument Co., Philadelphia, Pa. has just issued a new Catalog No. 77-1 — "Brown and Minneapolis-Honeywell Industrial Power Units and Motorized Valves."

This catalog describes a line of motor power units and motorized valves designed to operate with Brown Control Instruments and form an important part of the control system. By using a control instrument and control motor designed specifically for each other, the best results are obtainable, the makers say.

Profusely illustrated, actual photographs are shown of electric control motors, slip stem globe type, rotary stem globe type, butterfly type, pilot operated, three-way and special valves. Dimension tables and schematic diagrams give an accurate idea of workmanship and operation.

The company will send a copy of this catalog to those who request it. Address: The Brown Instrument Co., Wayne & Roberts Avenues, Philadelphia, Pa. and ask for Catalog No. 77-1.

Abegg and Reinhold Major Heat Treaters

Back of Abegg and Reinhold Co., Ltd., manufacturers of oil well tools and commercial heat treaters, is a story of modern American business enterprise. Starting in business over thirty-six years ago, today this concern, in addition to manufacturing oil well tools, is the largest commercial heat treater on the Pacific Coast.

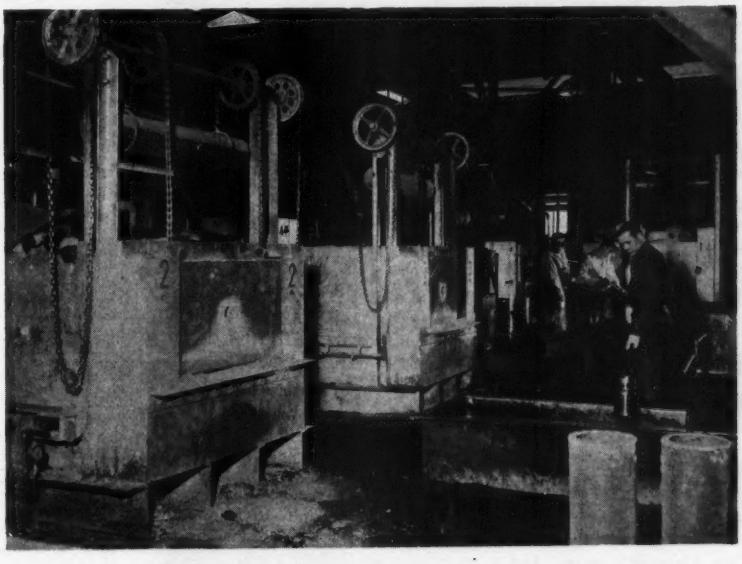
Beginning in a small way in 1907 with manufacture of small tools, the business grew so rapidly that in 1911 it was decided to incorporate. By 1912 the quality of their work attracted the attention of other manufacturers and they were soon required to expand their plant to take care of the heat treating business that was being offered to them. In 1924 the fine engineering and precision work of the firm drew to their office men interested in oil well drilling. This led to the manufacture of oil well tools and today Abegg and Reinhold manufacture a complete line of oil well products under the trade mark "Varco". Kelly bushings, master bushings, rotary slips, were specially designed and patented. In addition, slush pump liners and piston rods, work pipes and other products followed until today Varco products are found in service in every major oil field of the world.

The heat treating business grew more and more until today over thirty furnaces are working twenty-four hours a day. A new building 60x160 feet has just been completed with all the latest improvements for handling and heat treating. Small electric as well as large gas heated furnaces with capacity as high as 54-in. x 60-in. x 15-ft. are being installed. In addition, a new office building will soon be under way as well as additional plant expansion. Airplane parts, airplane motor parts, steamship engine cross heads, gears, electric motor parts and hundreds of other parts are daily passing through the heat treating department. An important part of heat treating is the development of pots and jigs in which to hold or place the parts so as to avoid sagging or distortion in handling. A large machine shop and a special welding shop provide the necessary equipment to handle this important work.

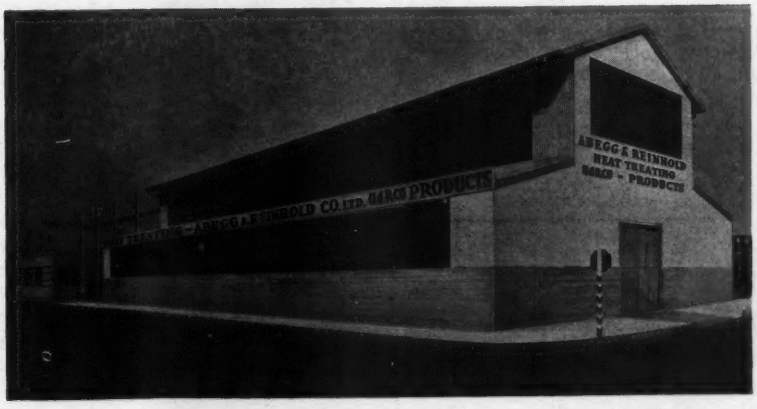
A new department for the repairing of drill pipe has been added. A special process (for which patent has been applied) has been developed whereby an alloy steel sleeve is shrunk and welded onto a worn tool joint. By this process expensive drill pipe is saved and restored to use.

Today the company is doing twice as much business as the peak year of 1929. The policy has been to grow slowly. Each new step has been carefully considered with the result that all new expansion is being financed out of past earnings and the company is free of all indebtedness.

Carburizing large masses in specially constructed carburizing pots—above piece weighs 3100 pounds.



Part of furnaces and quench tank.



View of Abegg & Reinhold new addition devoted exclusively to heat treating.

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Oil Men's Calendar

Calif. Natural Gasoline Association. Los Angeles Chapter—Meets 1st Thursday Each Month, Barker Bros. Bldg., Los Angeles—Dinner at 6:00 (Optional). Taft Chapter—Meets Third Thursday Each Month.

American Society of Mechanical Engineers—Los Angeles Section—Meets 2nd Thursday Each Month—Barker Bros. Bldg., Los Angeles. Dinner at 6:30 (Optional).

May

19-21—American Institute of Chemical Engineers, Chicago, Ill.

19-22—American Petroleum Institute, 11th Mid-Year Meeting, Mayo Hotel, Tulsa, Okla.

26-29—National Assn. of Purchasing Agents (Oil Company Buyers' Group), Stevens Hotel, Chicago, Ill.

29-31—National Oil Scouts & Landmen's Assn., Adolphus Hotel, Dallas, Tex.

June

1-6—Society of Automotive Engineers, Summer Meeting, The Greenbrier, White Sulphur Springs, W. Va.

9-10—Liquefied Petroleum Gas Assn., Inc., Pacific Coast Section, Fairmont Hotel, San Francisco, Calif.

23-27—American Society for Testing Materials, 44th Annual Meeting, Palmer House, Chicago, Ill.

September

8-12—American Chemical Society, Chalfonte-Haddon Hall, Atlantic City, N. J.

Bowen Tubing Safety Joint

A new safety joint made especially for use in tubing strings has been developed by S. R. Bowen Co., Santa Fe Springs, California. This tool insures quick, positive release of the string should the tubing below the joint sand-up, the tubing packer stick, or other well conditions prevent removal. Installed in the string above the packer, or above the point where sanding-up is liable to occur, this safety joint can eliminate costly cutting and pulling jobs.

The Tubing Safety Joint is similar in construction to the regular Bowen Safety Joint for drill pipe, consisting simply of a pin and a box section and packers. Standard double-box connections are provided for placing the joint in the string. Other dimensions are also the same as the tubing sizes with which the joints are used: outside diameter is no greater than the tubing couplings, and full opening on the inside is provided so that any tool able to enter the tubing can be safely run through the joint. Fluid passage is not interfered with in any way, and the packers seal off against all leakage inside or outside the string.

Definite mechanical actions are required to break the Tubing Safety Joint. Twisting or pulling strains (frequently necessary when setting packers, using the tubing as a fishing string, or performing other bottom hole work) will not affect the tight engagement of its two sections. The sturdy construction of the tool enables it to withstand far greater stresses than the pipe with which it is used, and it will deliver the full torque capacity of the string in either direction without unscrewing. To break the joint, however, it is only necessary to place from one to three unscrewing turns in the pipe and lower slowly until the joint breaks.

The Bowen Tubing Safety Joint is made in all popular sizes. Maintenance is practically nil—the tool can be quickly broken out of the string for inspection during routine well pulling operations. For further information, write S. R. Bowen Co., Santa Fe Springs, Calif.

Salvaging the tin from old auto radiators has become an important industry due to the curtailment of tin imports since the outbreak of war.